GROWTH CHARACTERISTICS OF 30 MAJOR
RETAIL FOOD CHAINS -- 1953-1963

K. D. Duft . . . D. B. DeLoach

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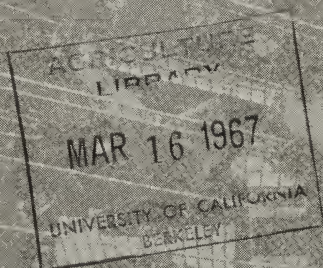
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CONTENTS

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THE FINDINGS

This bulletin reports the study of the operating performance of 30 major grocery chains over the 10-year period 1953–1963, their pattern of growth, and the factors behind their growth. It provides an economic analysis of the concentration of market power in the retail grocery business.

Today, more than enough retail food stores are available to supply the requirements of the local population in many parts of the United States. The retailers, competing for sales, cater to customer preferences for products and services, as much as this is economically feasible.

Population shifts, among age groups as well as geographically, affect managerial planning for food distribution. For instance, figure 1 shows a projected increase by 43 per cent in the 20-to-29-year age group by 1972, thus constituting a large increase in new family units. Similarly, the westward migration of our population forecasts a higher level of demand for food products, marketing services, and facilities in the West. Because market growth offers opportunities for food retailers, new merchandising technologies find fertile ground. The firms that survive must provide modern facilities, services, and products at competitive prices.

Corporate chains, operating only 10 per cent of the grocery stores in the United States, sold more than 41 per cent of the total grocery store volume in 1964. Affiliated buying groups handled 50 per cent, and unaffiliated stores 9 per cent.

About 68 per cent of the total grocery sales volume moved through supermarkets —stores with an annual sales volume of $500,000 or more. The relative volume of all small stores (up to $150,000 annual sales) continued to decline after 1958. This reflects a further shift of patronage to mass merchandising establishments. But the number of relatively small chain store firms increased, which indicates that established firms do not erect entry barriers, especially since most of these newer chains are found in large metropolitan areas where they are competing with the larger

previously established chains. The new chains, however, may find it difficult to obtain capital for entry and to survive in a competitive market.

Both from the standpoint of relative sales volume and actual store numbers, the two largest firms—The Great Atlantic and Pacific Tea Company and Safeway Stores, Incorporated—were relatively less important in 1964 than at any time during the last 20 years. The relative share of annual sales of the 20 major chains was about the same in 1929 and 1962. The most significant sales growth took place among the medium-size chains.

Several financial items were analyzed. Among the significant results are these:

- The portion of total assets considered fixed increased slightly, possibly circumscribing some of the flexibility needed in a progressive industry.
- The smaller chains seem to be using more short-term credit than the larger chains, particularly for open account purchases.
- The net worth position of the larger concerns improved slightly compared to that of the smaller chains. This seems to reflect their retention of corporate earning instead of outside financing.
- Before 1958, small chains had the largest net profits per sales dollar. Since 1958, this pattern has been reversed.
- Net sales were more responsive to changes in store numbers in the large-chain group than in the smaller-chain groups.
- On an average, the addition of one store tended to increase a chain's total annual net profit by $10,000. The small-chain group showed the lowest level of response in this respect.

An effort was made to account for the growing importance of retail chains in food distribution. The most obvious conclusion from the analysis is that, given the state of our technology, the "push for bigness" that characterizes most businesses, including agriculture, shows that size, sales,

and buying volume are basic to minimizing unit costs and increasing total net profits. Nonetheless, retail chain managers are always seeking the optimum size for their individual stores and the optimum number of stores within their given firm. Through the analysis, the following general tendencies show up:

- Group I (large-size chains) has the highest net return on net dollar sales on the average, while many of the large firms seem to be losing their grip on total industry sales.
- Group II (medium-size chains) seems to be most dynamic in increasing the scope of its operations. The data indicated great variations among the operating trends of the 10 individual chains in this group.
- Group III (small-size chains) seems to be rapidly expanding its relative share of the market, while as a group it received the lowest relative net profit as percentage of net dollar sales.

None of the chains seems to be satisfied that its present size, both in terms of sales and stores, provides the solution for optimizing profit. Therefore, experimentation goes on. The authors' attempts to project the outcome of this experimentation led to the conclusion that a further growth in the average size of chains is likely. This does not mean, however, that the large chains will grow still larger, compared to the others, but that the small- and medium-sized groups will increase in size.

Most investigations of the food industry have been made in answer to expressed dissatisfactions about some element of industry performance, usually about alleged inequities over prices paid or received at various levels of food production, manufacturing, or distribution. Most investigations have assumed that the alleged inequities are associated wth the market conduct of large-chain firms that use their economic power to influence, unduly, the terms of trade at all levels of marketing.

It is the judgment of the authors that technology has fostered and encouraged bigness in almost all of our basic industries, including agriculture. Large-scale, multistore retail food firms seem to be the only satisfactory arrangement to provide the investment capital required to support the modern technologies used by such firms. The only alternative source of capital of such magnitude would be a federal agency. This alternative has far-reaching implications.

The authors consider the growth of large food chains as a function of the competitive struggle for customers. Throughout the evolutionary period of mass merchandising, consumers have had alternatives available to them. If and when consumers find a more satisfactory solution to their food supply problems, retailing methods will be adjusted further. This is a basic attribute of the competitive process.

GROWTH CHARACTERISTICS OF 30 MAJOR RETAIL FOOD CHAINS—1953–1963[1]

Congress authorized the creation of the National Commission on Food Marketing on July 1, 1964, to conduct a broad economic inquiry of our food processing and distribution system and to report its findings by June 30, 1965. Ensuing delays in organizing the Commission and its staff made it necessary to extend the reporting date to June 30, 1966. Many leaders in the food industry were apprehensive about the type of inquiry that would be undertaken and believed that the short time allocated to the Commission for a comprehensive study would make a thorough appraisal of the economic problems confronting the industry impossible (Ginsburg, 1966). Many officials of retail food chains—centrally owned and controlled retail grocery firms with two or more store outlets—were uneasy about the direction the inquiry would take. Their past experience led them to believe that many economists, legislators, and farm leaders had already publicly taken a position on three of the main issues submitted to the Commission for study:

- That there is an undue concentration of market power in a few retail food chains.
- That the chains use their market power to depress farm prices and keep prices to consumers higher than they would be under more competitive conditions.
- That additional government restraints or remedial legislation are needed to correct the imbalance among the various groups engaged in producing, processing, distributing, and using food (Adamy, 1966).

Purpose of the study

The authors of this report, along with many other economists, are unwilling to accept the foregoing claims without further examination (Tongue, 1965). In particular we wanted to probe the implied charge that retail food chains strive to increase their size (power) primarily to manipulate their buying and selling prices. An alternative explanation for growing power of chains seems to be their advantage in obtaining the investment capital required to establish and operate modern retail outlets, including their ability to compete in pricing and promoting their merchandise, and their greater flexibility in adapting to the demographic changes in the United States.

To learn more about the reason for the growth in size and market power of retail food chains, an analysis of the growth characteristics of 30 major national and regional retail grocery chains was undertaken. This bulletin reports one phase of the study, supplementing U.S. Federal Trade Commission (1960) and Hiemstra and DeLoach (1962).

Procedure

The procedure for the analysis was dictated partly by the nature of the obtainable data. Fairly complete records are available for 30 grocery chains for the period 1953–1963, inclusive. In addition, the 1954 and 1959 censuses provide benchmarks against which the trade data can be compared.

To analyze the growth characteristics of the 30 chains included in this study, we sketched the environmental conditions which give rise to the demand for the number, kinds, and qualities of retail services offered consumers. To show the importance of recent changes in the structure of the retail grocery business, comparative sales data for both the independent (one-store firms) and chains are introduced. In our analysis of the 30 chains, we classify each chain, according to its annual sales volume, into one of three groups of 10 stores each: Group I contains the large chains with $400 million or more annual sales, Group II includes the medium chains with $100 to $400 million annual sales, and Group III has the small chains with

less than $100 million annual sales. The groupings are used to show comparative changes among groups I, II, and III and among the chains within each of the groups.

Changes in several important operating policies and practices are brought out by a comparative analysis of the financial records of the 30 chains. The performance results of each chain within and between the size groups are shown through a comparison of net returns on investment and/ or dollar sales. Finally, an attempt is made to appraise the impact on public policy of the growing economic power of retail food chains and to learn whether that policy has been or is an effective force in modifying the growth characteristics of chains.

The data and other information presented in this report were obtained from the published material listed in Literature Cited, unpublished material referred to in footnotes, and from interviews with industry and government officials.

CHARACTERISTICS OF THE MARKET

Retail food firms must continually adjust their business policies and practices to the changing environment in which they operate. This environment is affected greatly by changes in population composition and geographic movement, and consumers' disposable income which can be allocated to the purchase of various products and services.

Demographic changes

The Bureau of the Census estimates that the population of the United States will approximate 226 million by 1975. This is about 17 per cent above 1964 and 33 per cent above 1954. The structure of the population also is undergoing considerable change, especially among the age groups
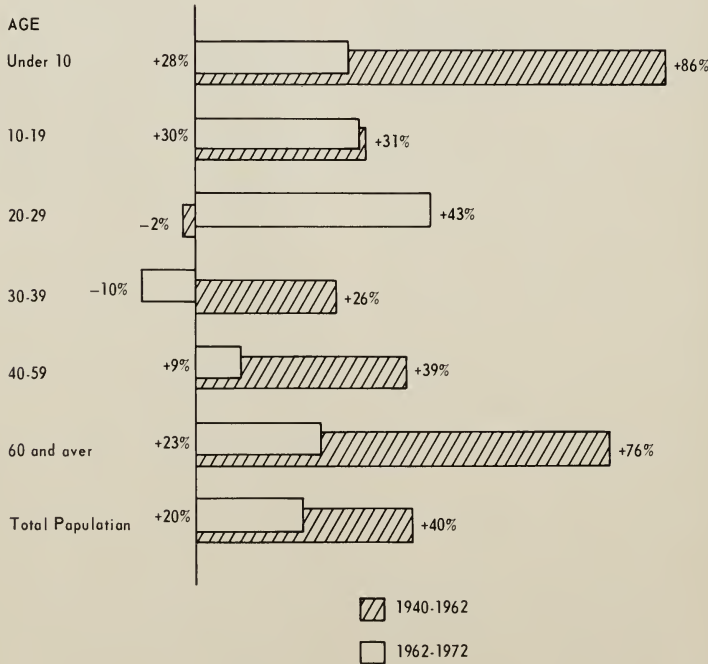

Fig. 1. Changing U.S. age compositions.
Source: This Week Magazine, 1963.

U.S. average
19.5% increase

Decrease

Increase below U.S. average

Increase above U.S. average

Fig. 2. U. S. population change, 1954–1964. Source: Appendix table A–1.

(figure 1). The projected growth of the 20- to 29-age group is particularly impressive because it reflects the probable growth of 43 per cent in the number of family units for the period 1962–1972. The editors of the *Progressive Grocer* (1965) expressed their attitude toward the population changes with this comment:

Youngsters married for the first time form a market which offers special opportunities to retailers and manufacturers. Their marriages create new households that never bought (food) independently before. They are establishing brand and store preferences and buying habits. Being inexperienced in shopping, they are more attracted to those store operators who understand their needs and cater to them. The prize, obviously, is not only their present business, but their future business as well.

In addition to the changes in population numbers and composition, the food industry is paying close attention to regional population shifts that can and do affect their sales and facility requirements in various parts of the country. In recent years there has been a strong movement to the southwestern states and a more moderate growth in most other areas. For example, the combined population of Arizona and California rose about 6.7 million between 1954 and 1964, or 48.1 per cent. In the Southeast, Florida's population increased by 2.3 million, or 67.5 per cent, during the 10-year period. This meant that the food industry had to provide facilities to distribute food to an additional nine million people in these three states alone (appendix table A-1 and figure 2).

Before 1950, population tended to move from rural to urban areas. Although this urbanization process is still in progress, it has now been overshadowed by a secondary movement of our city population into surrounding suburbs. Accompanying this movement has been the construction of a multitude of "shopping centers," almost all of which include a grocery store, various other merchandising outlets, banks, etc., all oriented toward serving the entire range of consumer wants.

To offset the suburbanization trend, widespread city housing redevelopment projects have beeen completed, more are underway, and new ones are planned. This kind of redevelopment of cities has had, and probably will continue to have, an important effect on the types of food distribution facilities required to serve the inhabitants. In fact, some industry leaders believe such redevelopments may be the basis for a revival of neighborhood stores designed especially to supply a large group of consumers who will buy on a "hand-to-mouth" basis.

The probable impact of population growth and geographic distribution on the number and distribution of grocery stores will be discussed under "Growth Patterns," on pages 29 to 34.

Disposable income

The net disposable income of consumers is a meaningful statistic to the retail grocer (appendix table A-1 and figure 3). This income affects both the volume of sales of the food industry and the kinds of products customers are most likely to buy. Although the food and nonfood purchases in grocery stores are an outgrowth of a number of conditions faced by customers, including better dietary information and alternative products, much of the increase in consumption of meats, dairy products, fruits, and vegetables became possible as income rose sufficiently to enable customers to shift to these relatively higher priced products (table 1). Also, customers, as their incomes rise, are purchasing more luxury and specialty foods, for example high-markup foreign food specialties.

Despite the fact that more money is being spent for food today than ever before, the percentage of consumers' disposable income used to buy food has declined from 25.6 per cent in 1947–1949 to 18.6 per cent in 1965 (U. S. Department of Agriculture 1965*c* and *d*).

Much of the disposable income used for food, household supplies, drugs, cosmetics, and many other consumer goods is spent in combination- and specialty-type grocery stores. Because our primary purpose is to examine the food retail distribution system, the next few sections will be directed toward this goal.
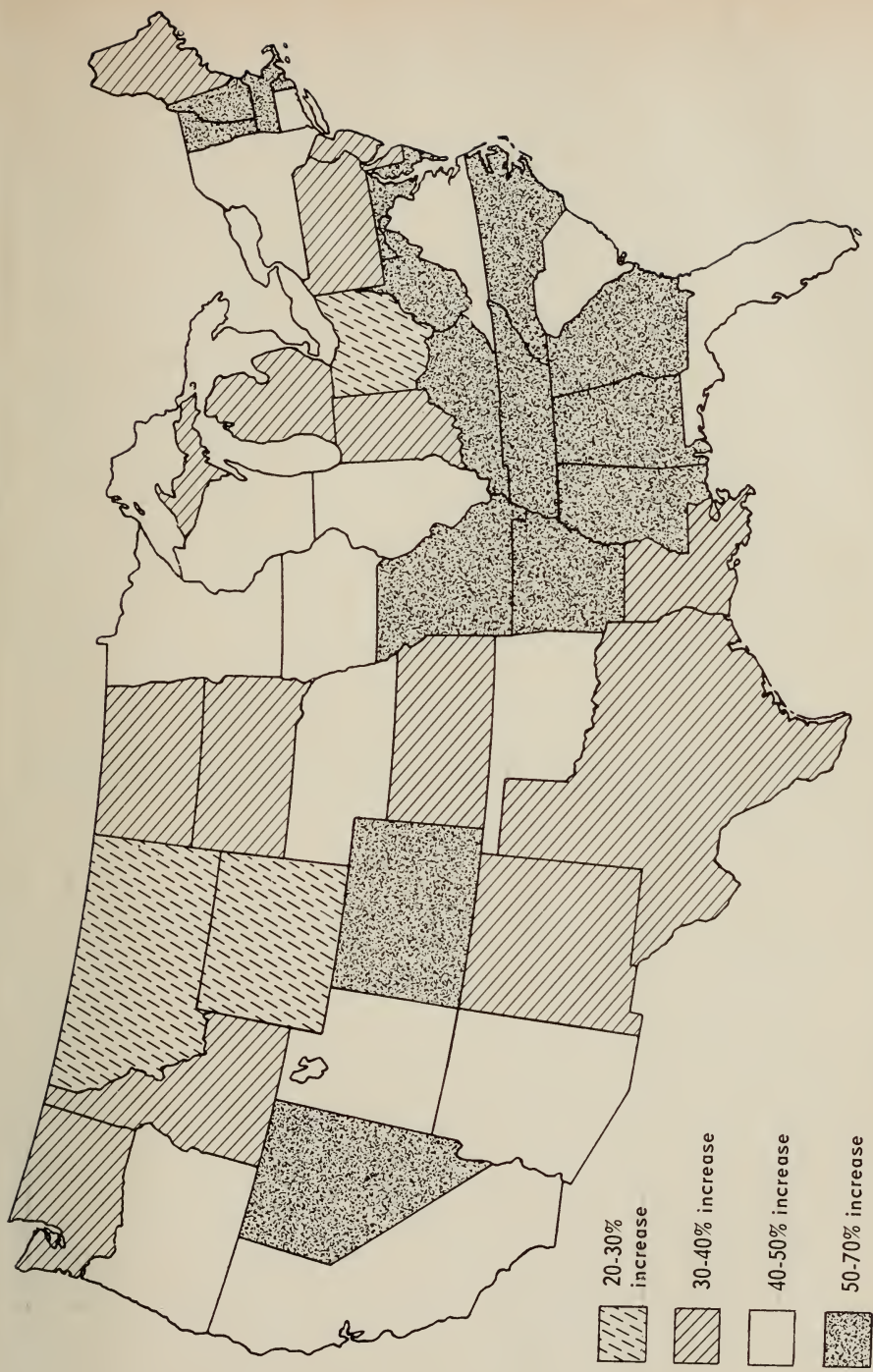
Fig. 3. Changes in per capita disposable income, 1954–1964. Source: Appendix table A–1.

20-30% increase

30-40% increase

40-50% increase

50-70% increase

Table 1

APPROXIMATE CONSUMPTION OF FOOD PER CAPITA
BY MAJOR FOOD CATEGORIES

Food category	1910		1932		1955		1963*		1910–1963
	Pounds	Percent-age of total	Pounds	Percent-age of total	Pounds	Percent-age of total	Pounds	Percent-age of total	Percent-age of change
Dairy products.....	337.0	.211	360.0	.238	398.0	.269	368.0	.259	+ 9.19
Eggs...............	37.1	.023	38.0	.025	46.9	.032	40.0	.028	+ 7.81
Meats, fish, and poultry...........	170.2	.107	152.8	.101	191.8	.130	203.3	.143	+ 19.44
Fats, oils, and butter	41.9	.026	46.8	.031	49.2	.033	49.9	.035	+ 6.62
Beans, peas, and nuts..............	16.3	.010	16.4	.011	16.3	.011	16.7	.012	+ 2.45
Fruits.............	130.6	.082	132.5	.088	143.4	.097	123.7	.087	− 5.28†
Fresh............	123.0	.077	115.9	.077	94.6	.064	73.7	.052	− 40.08
Processed........	7.6	.005	16.6	.011	48.8	.033	50.0	.035	+557.89
Vegetables..........	202.5	.127	220.0	.146	202.7	.137	197.6	.139	− 2.41†
Fresh.............	188.0	.118	198.0	.131	154.6	.104	145.1	.102	− 22.81
Processed........	14.5	.009	22.0	.015	48.1	.033	52.5	.037	+262.06
Potatoes...........	221.1	.139	156.3	.103	113.7	.077	111.4	.078	− 49.61
Flour and cereal products..........	295.0	.185	223.0	.147	152.0	.103	144.0	.101	− 51.18
Sugar and sweeten-ers................	87.9	.055	110.3	.073	106.3	.072	110.0	.077	+ 25.14
Coffee, tea, and cocoa.............	9.6	.006	13.8	.009	15.0	.010	15.6	.011	+ 62.50
Total.........	1,592.0	100	1,512.0	100	1,480.0	100	1,420.0	100	− 10.80

* Preliminary.

† Since this pertains to pounds of fruits and vegetables purchased at the retail store, this datum may be somewhat misleading. The greatly increased consumption of processed fruits and vegetables indicates that less wastage is now purchased with the food product. Therefore, "actual" fruit and vegetable consumption may have increased while pounds of fruits and vegetable products purchased has decreased. Rising incomes during this period provide an additional basis for this explanation.

Source: U. S. Department of Agriculture, 1965c, pp. 18–19.

CHARACTERISTICS OF THE RETAIL FOOD INDUSTRY

According to the 1964 Census, retail food store sales amounted to slightly more than $57 billion in 1963, or about 24 per cent of all retail transactions. The 1963 volume was handled by 319,433 outlets, or about 23 per cent of all retail trade outlets. The food stores employed 1,274,395 paid workers, or about 15 per cent of those in all kinds of retail outlets (table 2).

If the 1939 and 1963 annual dollar sales are adjusted to a 1947–1949 price index, food store sales more than doubled during the 24-year period. However, the increased volume was handled by 43 per cent fewer stores. Significantly the domestically produced food sold through these stores was produced on 6.9 million farms in 1939 and 3.5 million farms in 1963, a decrease of about 50 per cent.

Because the retail food industry of 1963 is a product of a changing technology and changing needs of its customers, a few comments of a historical nature seem appropriate to an understanding of the process by which our present-day retail food industry became what it is.

The present system of food distribution in the United States has been associated with our transition from a predominantly self-sufficient, rural society to a largely industrial-urban society and with advances in food technology that have made it possible to handle food as it is now done.

In our present industrial-urban society,

TABLE 2

ESTABLISHMENTS, SALES, AND PAID EMPLOYEES, BY KINDS OF BUSINESS, 1939, 1954, 1958, 1963

Kind of business	Number of establishments				Total sales				Number of paid employees (part time and full time)			
	1939	1954	1958	1963	1939	1954	1958	1963	1939	1954	1958	1963
					thousand dollars							
Food stores................	560,549	384,616	355,508	319,433	10,164,967	39,762,213	49,022,333	57,079,186	814,746	1,025,849	1,183,633	1,274,395
Eating and drinking places......	305,386	319,657	344,740	344,481	3,520,052	13,101,051	15,201,481	18,412,414	830,063	1,352,828	1,575,667	1,761,550
General merchandise group.......	50,267	76,198	86,644	62,063	5,665,007	17,872,386	21,879,106	30,002,764	965,884	1,258,990	1,326,671	1,468,468
Apparel group.............	106,959	119,743	118,759	116,223	3,258,772	11,078,209	12,525,451	14,039,979	417,396	607,340	648,703	630,204
Furniture, home furnishings, and appliance dealers.........	52,827	91,797	103,417	93,649	1,733,257	8,619,002	10,074,227	10,925,843	220,950	351,772	392,743	352,249
Automotive group...........	60,132	85,953	93,656	98,514	5,548,687	29,914,997	31,807,877	45,376,290	400,166	710,802	720,877	794,155
Lumber, building materials, hardware, and farm equipment dealers................	79,313	100,519	108,248	92,703	2,734,914	13,123,528	14,309,206	14,605,836	257,641	446,690	445,403	398,861
Drug stores and proprietary stores.................	57,903	56,009	56,232	54,732	1,562,502	5,251,791	6,778,926	8,486,682	192,296	300,435	347,627	360,799
Other retail stores...........	196,337	408,650	521,121	526,133	3,634,444	26,730,696	38,047,856	45,272,783	386,576	869,748	1,269,757	1,369,518
Total retail trade.........	1,469,673	1,721,650	1,788,325	1,707,931	37,822,602	169,967,748	199,646,463	244,201,777	4,485,718	7,124,331	7,911,081	8,410,199

consumers are almost totally dependent on our food distribution system as a means of maintaining their way of life. Conversely, the present system reflects, in a large measure, the acceptability to consumers of the system and their preferences among a large variety of services made available to them by competing retail firms that make up the system. In view of the demographic and technological changes taking place in the United States, it is reasonable to expect a further evolution in all sectors of the food industry, particularly the retail sector. The speed with which this change occurs will be determined by the technical and economic capacity of the food industry to stimulate and then fulfill their customers' desires for new products and services.

The evolutionary processes in food retailing are well illustrated by events in the United States during the past 200 years. The colonial villages relied on bakers, butchers, and tea and spice merchants for items produced outside the home. Later, the itinerant merchant or peddler became the principal supplier of the farmers in the sparsely settled country. As the rural population increased and became more concentrated, the general store type of operation became a feasible source of supply. A further concentration of population in towns and cities made possible the specialty food store—bakery, dairy, fruit and vegetable, and meat—a type of operation in which the individual was both the owner and operator.

Today, one sees all types of retail food stores. Competition for urban customers has encouraged a reversion to the general store concept on a larger and more pretentious scale. In an effort to improve shopping arrangements, encourage "one-stop" shopping, and reduce unit selling costs, food retailers began offering a complete line of foods, a wide range of higher-margin household products, cosmetics, wearing apparel, drugs, and hardware. The widespread use of private automobiles also has been a very important factor in expanding the area from which large retail stores can draw customers.

The practice of selling a wide range of food and nonfood merchandise requires more floor space and equipment than is needed by the more conventional grocery store. These large combination stores, often departmentalized, are referred to as the "supermarkets" which now account for the largest percentage of all retail food sales. Zimmerman (1955) defines the supermarket as "a highly departmentalized retail establishment, dealing in foods and other merchandise, either wholly owned or concession operated, with self-service sales, adequate parking space, and doing a minimum of $250,000 (since doubled) in business annually." The modern supermarket embodies the accumulation of previous technological innovations in food retailing and supplements them with improved techniques developed by other segments of the nation's economy (Mueller and Garorian, 1961).

Table 3 illustrates the declining importance of the more specialized-type outlet and the growing importance of the combination-type store. Total sales more than doubled for the combination stores from 1948 to 1963, while there was little or no sales increase for the specialized units. However, the number of specialty food stores decreased by only 18.2 per cent; the number of combination stores decreased by 34.8 per cent.

As the combination-type store grew, both in sales and average store size, more small independent operators went out of business (appendix table A-2). These data also show that because of the large decrease in the number of combination stores, the specialty-store group was a larger proportion of the total food store group in 1964 than in 1955. Nonetheless, total sales volume is of much greater economic significance than number, and illustrates better the declining importance of the specialty food store.

Figure 4 shows the relative growth in chain store outlets compared to that of the independents. While the number of chain stores increased by 1,960 stores between 1955 and 1964, the number of all food stores decreased by 123,640.

The trend towards larger food stores is shown in appendix table A-3. In 1953 food sales in the small-stores group constituted about 20 per cent of total sales and those in supermarkets were 48.3 per cent. In 1961, the last year for which comparable

TABLE 3

RETAIL ESTABLISHMENTS AND SALES, BY KIND OF STORES,
SELECTED YEARS

Kind of store	Number of establishments				Sales			
	1948	1954	1958	1963	1948	1954	1958	1963
					thousand dollars			
Grocery and combination stores..................	350,754	279,440	259,796	244,838	24,729,717	34,420,764	43,696,343	52,565,955
Meat markets.............	23,920	22,896	23,844	16,457	1,641,087	1,943,969	2,327,038	1,529,814
Fish markets..............	4,517	4,458	4,339	3,630	132,331	184,148	193,748	175,666
Fruit and vegetable markets.................	13,482	13,136	12,689	8,874	394,602	484,503	505,355	412,292
Candy, nut, and confectionary stores...........	27,165	20,507	17,593	14,979	586,592	567,955	527,752	499,268
Bakery products..........	19,500	19,034	19,235	18,631	722,761	862,290	904,981	1,080,282
Delicatessens.............	7,917	8,132	NA	NA	308,336	479,787	NA	NA
Other stores..............	13,658	13,777	18,012	12,024	692,438	752,439	867,116	815,909
Total...............	460,913	381,380	355,508	319,433	29,207,864	39,695,855	49,022,333	57,079,186

SOURCE: U. S. Bureau of the Census, 1954, 1958, and 1963.

Fig. 4. Composition of total food stores.
Source: Appendix table A–2.

data are available, the small-store group accounted for about 8 per cent of total sales and supermarkets for 70 per cent. A subsequent (1962) reclassification of stores into small (up to $150,000 in annual sales), superette ($150,000 to $500,000), and supermarkets (more than $500,000) places many of the former superette stores in the small-store class, thereby affecting total sales of all three groups. Despite this change in classification, the supermarkets held roughly 68 per cent of the total an-

TABLE 4

GROWTH IN NUMBER OF
SUPERMARKETS

Year	Number of supermarkets*	Size definition of supermarket (minimum annual gross sales)
		dollars
1952..............	16,500	375,000
1954..............	21,440	375,000
1955..............	24,700	375,000
1956..............	27,100	375,000
1957..............	28,800	375,000
1958..............	29,900	375,000
1959..............	32,000	375,000
1960..............	33,300	375,000
1961..............	30,100	375,000
1962..............	27,125	500,000
1963..............	28,400	500,000
1964..............	30,900	500,000

* Progressive Grocer, 1955–1965, and 1963.

TABLE 5

NONFOOD SALES IN SUPERMARKETS AS A PERCENTAGE OF
TOTAL SALES, 1958–1963

Item	Percentage of total sales					
	1958	1959	1960	1961	1962	1963*
Health and beauty aids...............	2.28	2.38	2.47	2.57	2.75	2.29
Housewares...........................	.74	.81	.84	.88	.93	.83
Magazines and books..................	.21	.22	.23	.26	.27	.43
Soft goods............................	.26	.30	.33	.36	.40	.56
Toys..................................	.10	.11	.13	.15	.15	NA
Phonograph records...................	.10	.11	.13	.13	.13	NA
Stationery............................	.08	.09	.10	.11	.12	†
All nonfoods..........................	3.77	4.02	4.23	4.45	4.75	NA

* Food chains only.
† Included in "Magazines and books."
SOURCE: *Progressive Grocer*, 1952–1964.

nual grocery store sales. This increasing
importance of the large supermarket is
even more obvious in table 4.

As mentioned, inherent in the present-
day supermarket is a characteristic of the
old general store—that of selling various
nonfood products, which amounted in
1962 to 4.75 per cent of sales, with a con-
tinuing upward trend indicated (table 5).
The most common nonfood products sold

TABLE 6

SALES OF CHAIN AND INDEPENDENT STORES,
BY SIZE GROUP FOR SELECTED YEARS

Size of store	Sales per store					
	1953	1958	1959	1960	1961	1962
	dollars					
Small*						
Chain...........................	70,000	62,500	62,500	62,500	NA	82,143
Independent.....................	24,945	17,949	17,448	25,298	NA	58,371
Total......................	25,110	18,040	17,541	25,386	26,541	58,738
Superette*						
Chain...........................	272,674	297,297	306,452	300,000	NA	301,786
Independent.....................	141,210	191,964	211,321	204,301	NA	274,490
Total......................	157,224	198,492	216,578	208,405	217,153	277,289
Supermarket*						
Chain...........................	976,699	1,143,791	1,141,975	1,150,585	NA	1,501,701
Independent.....................	779,070	1,054,795	1,031,646	1,018,519	NA	1,292,683
Total......................	886,772	1,096,667	1,087,500	1,086,336	1,269,103	1,401,292
All stores..........................	95,739	169,474	179,412	202,308	218,850	238,237

* 1962: Small, under $150,000 annual gross sales; Superette, $150–$500,000; Supermarket, $500,000 and more. Prior
to 1962: Small, under $75,000; Superette, $75–$375,000; Supermarket, $375,000.
SOURCE: Appendix table A-3.

TABLE 7

UNITED STATES POPULATION,
GROCERY STORES, AND
POPULATION PER STORE
FOR SELECTED YEARS

Year	Popula-tion	Grocery stores	Popula-tion per store	Increase from 1940
	million	*thousand*		*index*
1940.........	132.1	444.9	297	100
1945.........	139.9	397.0	352	119
1950.........	151.7	400.7	378	127
1958.........	175.4	285.0	615	207
1959.........	177.1	280.5	631	212
1960.........	180.0	260.1	692	233
1961.........	183.0	248.8	736	248
1962.........	185.8	235.9	788	265

SOURCE: U. S. Bureau of the Census, 1963, and *Progressive Grocer*, 1952–1964.

in today's store are classified as "Health and Beauty Aids," including such high-margin items as cosmetics, toiletries, and drugs (*Progressive Grocer*, 1959).

As early as 1957, more than half of the existing food stores sold drugs and cosmetics, magazines, housewares, stationery, toys, beer, hardware, store-baked goods, dietetic foods, soft goods, greeting cards, books, and garden supplies. To accommodate this increase in the items offered, the stores have continually grown larger. The average undeflated dollar sales per store almost doubled in each of the three classifications during the past 10 years (table 6)[2], and the average population per store rose from 297 persons in 1940 to 788 persons in 1962 (table 7).

THE RETAIL FOOD CHAINS

Because of the controversy surrounding the rising economic power of the national food chains and their policies and operating practices (Ginsburg, 1966), this analysis emphasizes the position of the chains in the structure of the industry.

The term "retail food chain" used in this report refers to a firm operating more than one retail outlet, even though the United States Census classification includes firms with 11 or more outlets. The retail firm may or may not be integrated back to its source of supply of merchandise. The corporate chain, which is the most common form of ownership, is a

centrally owned and controlled, multi-unit firm, performing both the buying and selling functions in retailing. Such a firm may be local, regional, or national, depending on its area of operation. Neither independently owned, single-store firms which associate themselves together for cooperative buying, advertising, and public relations, nor wholesaler-sponsored buying groups are considered as chains in our study These groups are referred to as "affiliated" stores. Single-store firms without such a relationship with wholesalers or other retailers are referred to as "unaffiliated" stores.

TABLE 8

CHAIN EXPANSION PATTERN, BY SIZE GROUPS, 1953–1964

Number of stores per chain	Number of chains in group		Change in number	Number of stores operated by groups		Change in number	Average number of stores per chain	
	1953	1964	1953 to 1964	1953	1964	1953 to 1964	1953	1964
2–3............	2,013	2,509	+496	4,654	5,650	+ 996	2.31	2.25
4–9............	587	648	+ 61	3,040	3,448	+ 408	5.18	5.32
10–25............	171	201	+ 30	2,620	2,916	+ 296	15.32	14.51
26–99............	85	83	− 2	3,449	4,178	+ 729	40.58	50.34
100 and more....	23	30	+ 7	14,115	17,058	+2,943	613.70	568.60

SOURCE: Mooney, 1964, p. 38.

[2] The retail food price level rose about 8 per cent during this period.

Table 8 indicates that the 2- and 3-store chains increased in number more than other size groups between 1953–1964. The 2- and 3-store firms and the 26- to 99-store firms had the greatest percentage increase in the number of store outlets. However, the chains with more than 100 stores had the greatest increase in actual store outlets.

Data from appendix table A-3 and table 9 show that the chains have been steadily improving their position relative to the independents as far as the number of stores operated by the two groups is concerned. Even though chains operate only a small part of all grocery stores, their 8.7 per cent of the total grocery and combination stores now accounts for 41.2 per cent of total sales for that group.

RELATIVE IMPORTANCE OF CHAINS VERSUS INDEPENDENT GROCERY AND COMBINATION STORES

Percentage of total grocery and combination stores

	1953	1958	1959	1960	1961	1962
Chain..........	5.6	6.8	7.0	7.9	NA	8.7
Independent...	94.4	93.2	93.0	92.1	NA	91.3

Percentage of total grocery and combination store sales

	1953	1958	1959	1960	1961	1962
Chain..........	36.0	38.7	38.8	38.9	NA	41.2
Independent...	64.0	61.3	61.3	61.2	NA	59.8

Source: Appendix table A-3.

TABLE 10
GROCERY SALES BY MAJOR CHAINS AS A PERCENTAGE OF ALL GROCERY STORE SALES FOR SELECTED YEARS

Year	A & P	Safeway	Kroger	American	Total of 4 largest	Second 4 chains	Next 12 chains	Total of top 20 chains	Other chains	All chains
					per cent					
1929...........	14.3	2.9	3.9	2.0	23.1	3.6				
1935...........	13.7	4.6	3.6	1.8	23.7	3.6				
1940...........	13.4	4.8	3.1	1.7	23.0	3.2	3.0	29.2	8.2	37.4
1941...........	14.4	4.9	3.2	1.8	24.3	3.4	2.8	30.5	8.6	39.1
1942...........	12.1	5.0	3.2	1.7	22.0	3.4	2.6	28.0	9.5	37.5
1943...........	9.9	4.4	3.2	1.6	19.1	3.0	2.5	24.6	8.2	32.8
1944...........	10.3	4.1	3.3	1.7	19.4	3.1	2.7	25.2	9.3	34.5
1945...........	10.0	4.6	3.2	1.6	19.4	3.2	3.1	25.7	7.6	33.3
1946...........	10.3	4.6	3.1	1.7	19.7	3.5	3.2	26.4	7.7	34.1
1947...........	11.4	5.0	3.4	1.7	21.5	3.7	3.3	28.5	9.3	37.8
1948...........	11.5	5.2	3.3	1.7	21.7	3.8	3.3	28.8	8.8	37.6
1949...........	11.7	4.8	3.3	1.7	21.5	3.9	3.7	29.1	9.7	38.8
1950...........	12.0	4.6	3.3	1.7	21.7	4.1	4.1	29.9	8.6	38.5
1951...........	11.2	4.8	3.3	1.7	21.0	4.1	4.1	29.2	6.9	36.1
1952...........	11.7	5.1	3.3	1.6	21.7	4.2	4.5	30.4	7.2	37.6
1953...........	11.9	5.2	3.2	1.8	22.0	4.5	4.8	31.3	7.7	39.0
1954...........	11.8	5.2	3.2	1.8	22.0	4.8	5.1	31.9	8.2	40.1
1955...........	11.7	5.2	3.3	1.8	22.0	5.3	5.8	33.1	7.9	41.0
1956...........	11.4	5.1	3.8	2.0	22.3	5.6	6.6	34.5	7.5	42.0
1957...........	11.2	5.0	3.9	2.0	22.1	5.7	6.8	34.6	7.4	42.0
1958...........	11.4	5.0	4.0	2.0	22.4	6.0	7.2	35.6	7.4	43.0
1959...........	9.4	4.4	3.5	1.6	19.0	5.1	5.8	29.9	6.1	36.0
1960...........	8.9	4.3	3.3	1.7	18.2	5.1	6.0	29.3	8.0	37.2
1961...........	8.9	4.3	3.1	1.7	18.1	5.2	6.1	29.3	8.2	37.5
1962...........	8.5	4.1	3.2	1.7	17.4	5.5	6.3	29.2	8.3	37.5

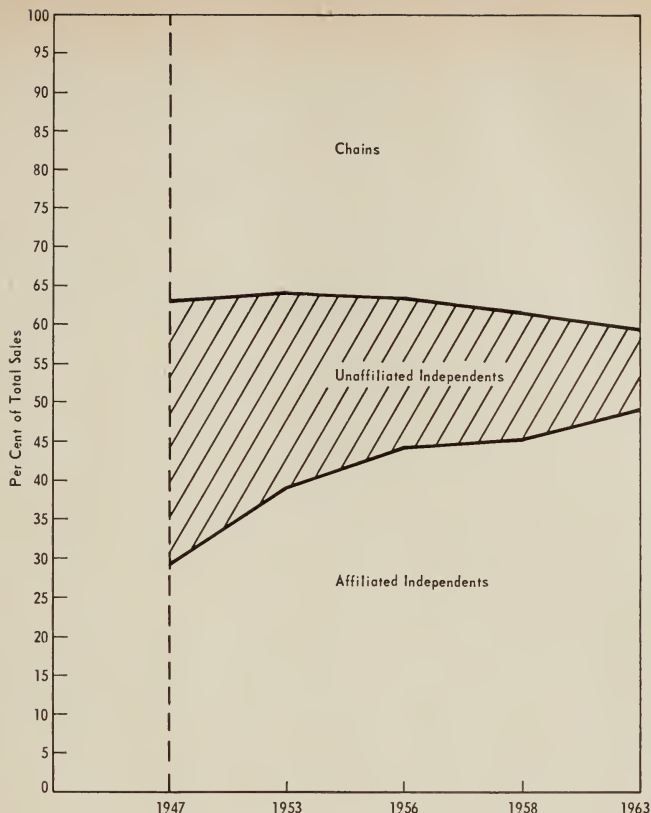Source: Mueller and Garoian, 1961, and *Progressive Grocer*, 1952–1964.

Fig. 5. Distribution of total U. S. grocery store sales.
Source: Progressive Grocer, 1952–1964.

Among the nation's largest food chains, A & P has been and still is the largest (table 10). This dominance is no longer so noticeable, its share having decreased from 14.3 per cent in 1929 to 8.5 per cent in 1962. Safeway's share rose from 2.9 per cent in 1929 to 4.07 per cent in 1962. The share of the total sales of the four largest chains decreased from 23 per cent to 17.4 per cent during that period. The ninth through the twentieth largest chains were the most active with respect to fluctuations in their sales levels, having more than doubled their share of total grocery sales from 1941 to 1962.

When comparing chain store food sales with those of the affiliated and unaffiliated independents, one finds that the sales of affiliated independent stores have increased proportionately, even more than chain store sales. The share of the un-affiliated independents has continued to decline in relation to the other groups (figure 5).

Growth characteristics of chains

The 30 major food chains selected for this study accounted for about one-third of all grocery store sales in 1963. Table 11 ranks them according to their annual sales within the chain store group for selected years, beginning in 1940.

Table 12 shows the relative size of the 30 major chains and the estimated percentage of all sales made by all food stores during 1963.

Growth Indices. As stated, the 30 chains were divided into three size groups —small, medium, and large—of 10 chains each. Both the net sales and the number of stores for each chain for the 1953–1963 period were converted into indices, with

Table 11

DISTRIBUTION OF SALES OF 30 MAJOR FOOD CHAINS AS A PERCENTAGE OF TOTAL GROCERY STORE SALES FOR SELECTED YEARS

Firm	1940	1955	1958	1959	1960	1961	1962	1963
	per cent							
The Great Atlantic and Pacific Tea Company, Inc.	35.8	29.03	26.6	26.16	23.81	23.79	22.64	22.01
Safeway Stores, Inc.	12.8	13.55	11.6	12.24	11.65	11.51	10.84	10.98
The Kroger Company	8.3	8.55	9.3	9.84	8.82	8.36	8.41	8.71
American Variety Stores	4.0	4.38	4.6	4.49	4.63	4.59	4.47	NA
National Tea Company	2.0	4.04	4.1	4.26	4.04	4.03	4.23	4.38
Food Fair Stores, Inc.	.9	2.88	3.7	3.77	3.64	3.81	3.99	4.16
Winn Dixie Stores, Inc.	.4	1.83	3.3	3.42	3.40	3.48	3.34	3.45
First National Stores	4.6	3.30	2.9	2.73	2.48	2.43	3.07	3.09
The Grand Union Company	1.1	1.54	2.6	2.59	2.95	2.74	2.77	2.61
Colonial Stores, Inc.	1.5	2.66	2.3	2.31	2.10	2.00	1.94	1.90
Jewel Tea Company, Inc.	.9	1.93	2.3	2.28	2.32	2.31	2.39	2.56
Wrigley Supermarkets	.07	NA	2.0	1.86	1.64	1.73	1.68	1.65
Loblaw, Inc.	.7	1.33	1.5	1.46	1.56	1.40	2.15	2.16
Stop and Shop, Inc.	.7	NA	1.0	1.00	1.13	1.34	1.37	1.66
Penn Fruit Company, Inc.	NA	.76	.8	.86	.79	.80	.75	.67
Thriftimart, Inc.	.2	.37	.9	.84	.79	.81	.90	.92
Red Owl Stores, Inc.	.4	.79	.9	1.02	1.07	1.25	1.21	1.24
H. C. Bohack Company, Inc.	.8	.95	.8	.82	.81	.75	.76	.79
Lucky Stores, Inc.	.2	.31	.7	.92	.90	.91	1.00	1.07
J. Weingarten, Inc.	.4	.55	.7	.64	.65	.63	.59	.59
Mayfair Super Markets, Inc.	NA	.47	...	.79	.96	1.16	1.25	NA
Thorofare Markets, Inc.	NA	.57	...	.57	.58	.58	.38	.60
Fisher Foods, Inc.	NA	.60	...	.51	.50	.49	.45	.41
Purity Stores, Inc.	NA	.65	...	.51	.48	.48	.46	.45
Market Basket	NA	.46	...	.49	.49	.54	.52	NA
Shopping Bag Supermarkets	NA	.45	...	NA	NA	NA	NA	NA
Daitch Shopwell	NA	.34	...	.43	.42	.38	.46	.52
Alpha Beta Stores	NA	.32	...	NA	NA	NA	NA	NA
Food Mart, Inc.	NA	.12	...	.30	.28	.28	.29	.35
Marsh Supermarkets, Inc.	NA	.13	...	.33	.37	.36	.35	.32

SOURCE: *Progressive Grocer*, 1952–1964.

1953 as base year. These indices were used to calculate an "expansion ratio" which was obtained by dividing the sales index of a firm for a given year by its index of the number of stores for the same year. The resulting "expansion ratio" becomes a rough measure for the proportional increase in annual sales per store over the observation period.

Figure 6 shows a fairly consistent increase in the average annual net sales for Group I for the period 1953–1963. After 1956, the increase for Colonial Stores, Inc., was very small; however, the most revealing fact is that an average of the five largest chains (1–5) had sales expan-sion indices lower than the Group I average. This indicates that, with respect to sales, the nation's five largest chains were maintaining a lower sales growth proportional to the average of Group I. It must be noted, however, that a base period analysis gives an advantage to firms with a smaller base and discloses nothing about increases in absolute sales volume.

Food Fair Stores, Inc., and Winn Dixie Stores, Inc., experienced the greatest relative growth in the number of food stores in Group I (figure 7). The number of stores for the two largest chains changed very little, while the absolute number decreased for three of the ten chains. These

TABLE 12

PERCENTAGE SHARE OF ALL 1963 GROCERY STORE SALES
FOR EACH OF THE 30 MAJOR CHAINS

Chain	Percentage of U. S. grocery store sales (1963)	Chain	Percentage of U. S. grocery store sales (1963)
A & P	8.26	Mayfair Markets	.47 (1962)
Safeway	4.12	Lucky Stores	.40
Kroger	3.27	Thriftimart	.34
American	1.68 (1962)	Bohack	.29
National Food	1.64	Penn Fruit	.25
Food Fair	1.56	Weingarten	.22
Winn Dixie	1.29	Thorofare	.22
First National	1.16	Market Basket	.20 (1962)
Grand Union	.98	Daitch Shopwell	.19
Jewel Tea	.96	Purity Stores	.17
Loblaw	.81	Fisher Bros	.15
Colonial	.71	Food Mart	.13
Wrigley	.62	Marsh, Inc.	.12
Stop & Shop	.62	Shopping Bag	NA
Red Owl	.47	Alpha Beta	NA

SOURCE: *Progressive Grocer*, 1952–1964.

store expansion data do not distinguish between new stores and acquired or purchased stores, nor do they show the closing of old, small, or inefficient stores.

As mentioned, those chains in the eleventh through twentieth categories seemed to be the most dynamic (figure 8). Although the Group II average net sales index moved steadily upward after 1953, the sales of individual firms within Group II diverged considerably from the average. Lucky Stores, Inc., and Mayfair

(1) The Great Atlantic and Pacific Tea Company, Inc.
(2) Safeway Stores, Inc.
(3) The Kroger Company
(4) American Variety Stares
(5) National Tea Company
(6) Food Fair Stores, Inc.
(7) Winn Dixie Stores, Inc.
(8) First National Stores
(9) The Grand Union Company
(10) Colonial Stores, Inc.
– – – – overage

Fig. 6. Expansion index of net sales, Group I chains. Source: Appendix table A–4.

Fig. 7. (above) Expansion index of number of stores, Group I chains. Source: Appendix table A–4
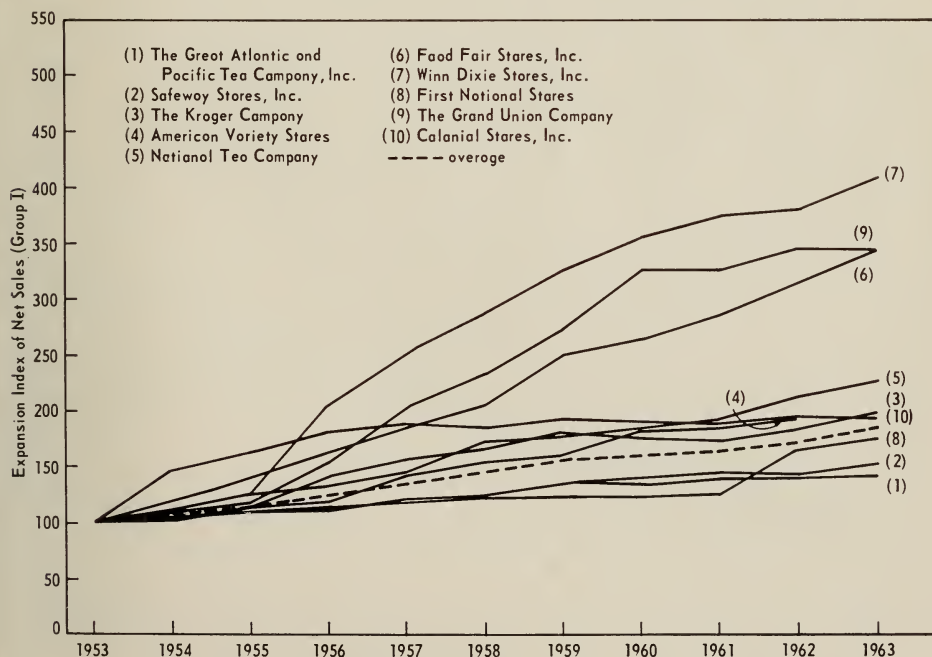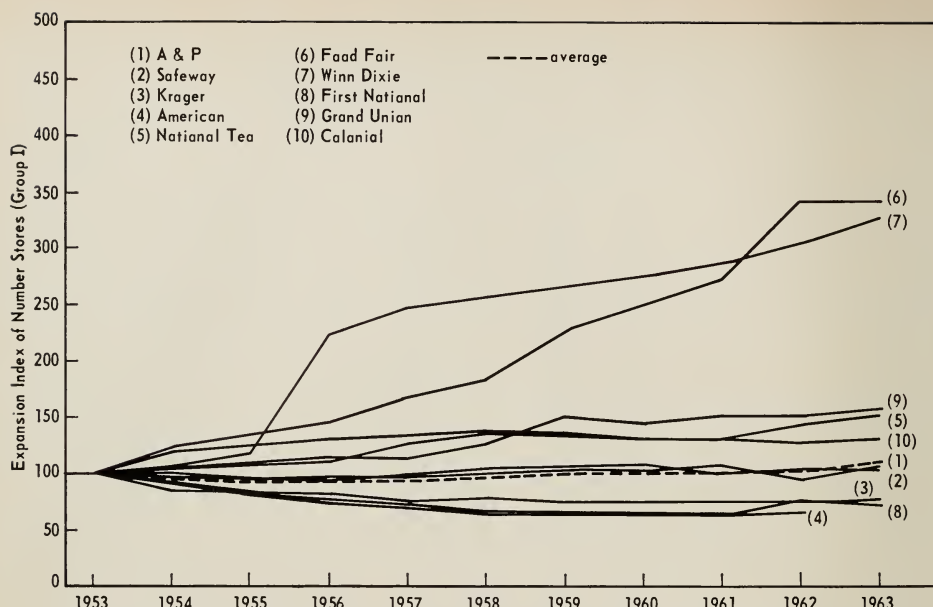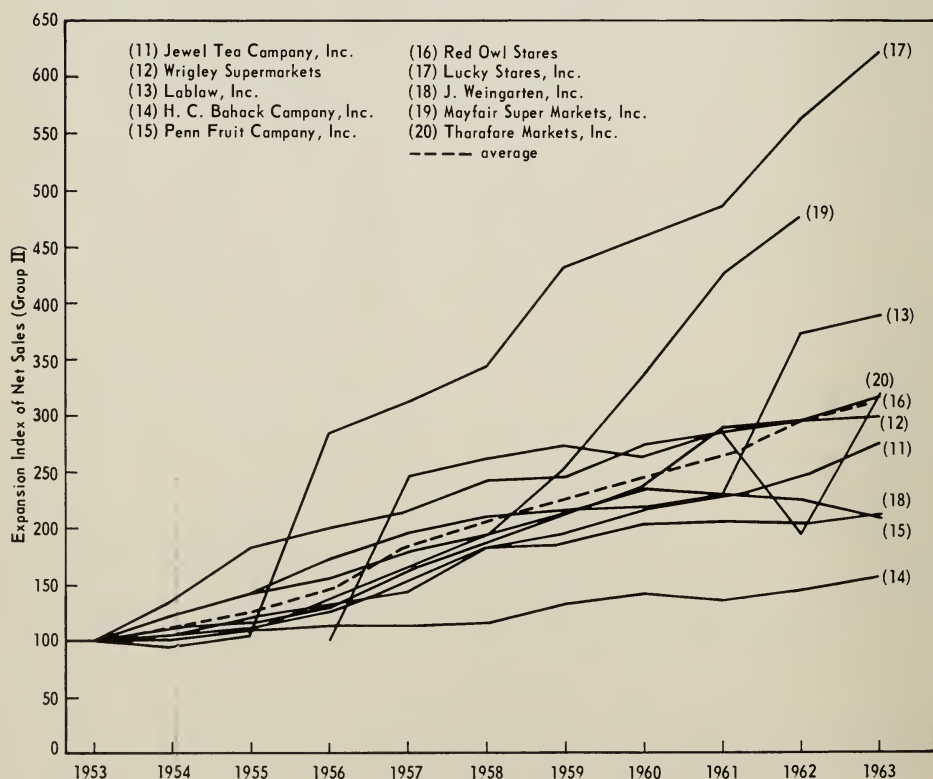**Fig. 8.** (below) Expansion index of net sales, Group II chains. Source: Appendix table A–4.
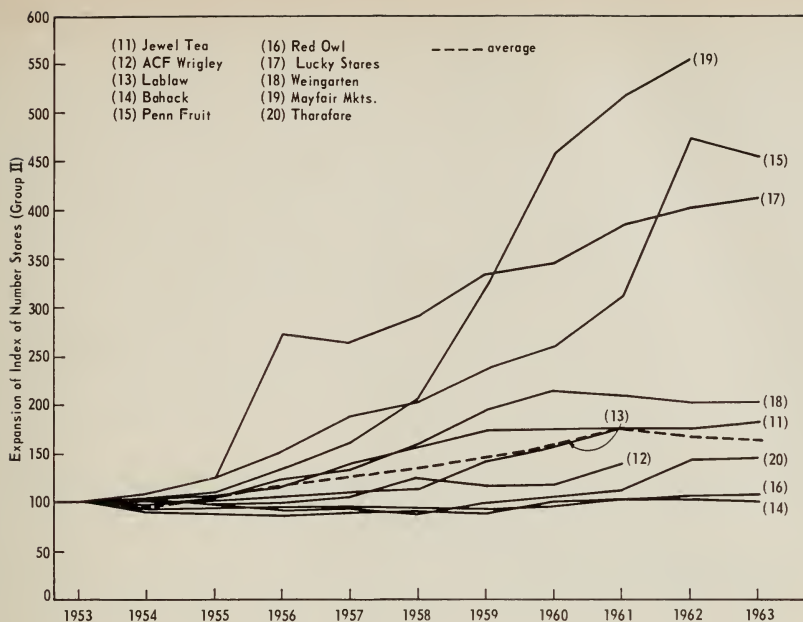
Fig. 9. (above) Expansion index of number of stores, Group II chains. Source: Appendix table A–4. Fig. 10. (below) Epansion index of net sales, Group III chains. Source: Appendix table A–4.
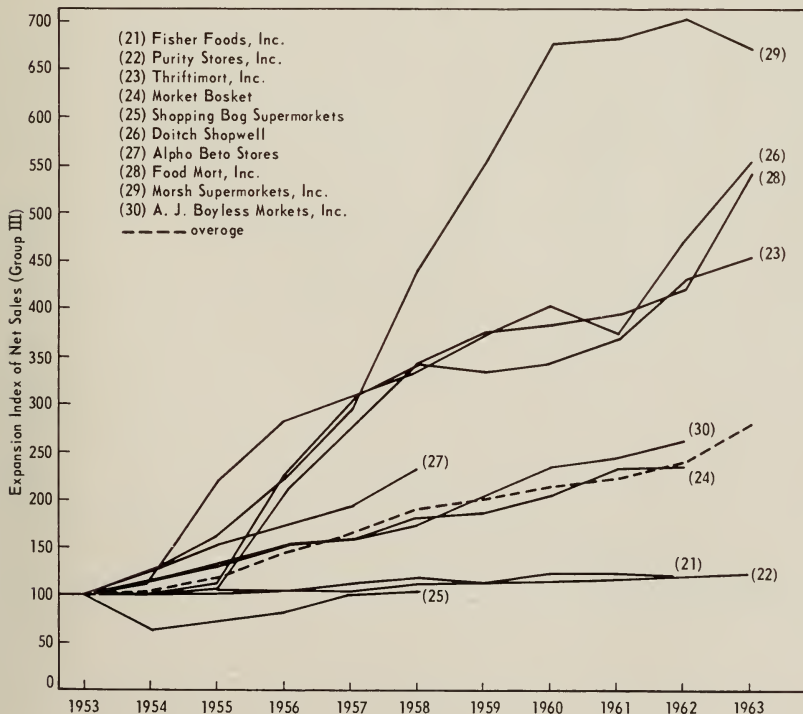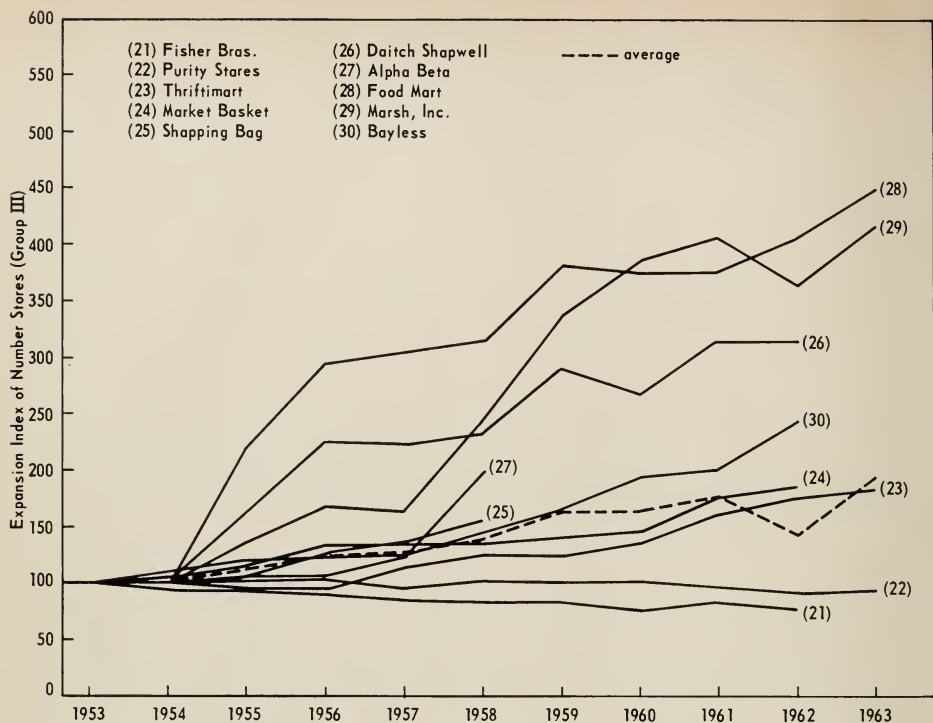
Fig. 11. Expansion index of number of stores, Group III chains. Source: Appendix table A–4.

Super Markets, Inc., experienced the greatest proportional growth; H. C. Bohack Co., Inc., experienced the least. Chains 13, 17, and 19 seem to have expanded sales at an increasing rate, while the remaining firms' expansion rate tapered slightly in more recent years.

Except for Bohack, Group II chains increased their number of stores during the observation period. Chains 15, 17, and 19

Fig. 12. Expansion index of net sales and number of stores, by group. Source: Appendix table A–4.
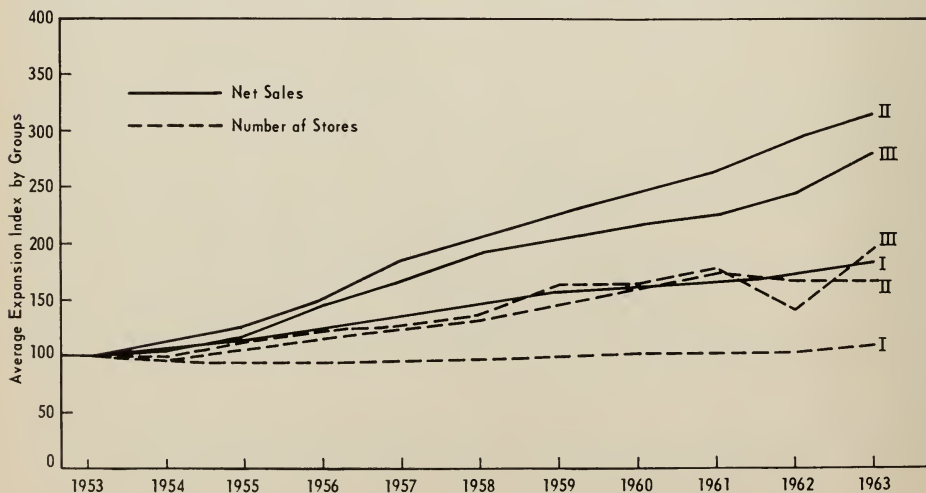
were near the top of the expansion, while 14 was at the bottom (figure 9).

Group III showed a less erratic expansion of net sales than Group II. Nevertheless, there were substantial differences among individual chains within Group III. As shown in figure 10, the ten chains seem to fall into three general growth patterns. Chains 21 and 22 had very little proportional growth in net sales, chains 24, 27, and 30 experienced nominal growth and the remaining four chains had net sales growth far above the group average. For all three groups, 1955–1959 was the period of greatest sales expansion and 1960–1962 the period of greatest irregularity.

In figure 11, the expansion in number of stores generally falls in the same three growth patterns mentioned above. However, chains 21 and 22 had very little growth of net sales and actually had a decline in the number of stores. This raises the question of whether the small proportional sales growth was the cause

or effect of the decrease in the number of stores. The decline in store numbers seems to have picked up momentum during the latter part of the observation period. In view of this, one would suspect that the relatively small sales gain in the earlier years actually caused these chains to close, merge, or sell some of their old or unproductive operations.

Figure 12 shows the average expansion index of net sales and number of stores by group. In almost every year of the observation period, the proportional expansion rates for the two largest groups were lower than those of the smaller group.

To reiterate: The expansion ratio is the quotient of the net food sales index divided by the number of stores index for a given firm. Hence, the quotient will be affected by disproportionate changes in the divisor and dividend. Figure 13 shows the 1963 expansion ratios for all 30 of the nation's larger food chains. The average expansion ratio for all 30 chains is approximately 1.6 which, loosely inter-

Fig. 13. Expansion ratio, for all chains, groups, and individual chains, 1963.
Source: Appendix table A–5.

[23]
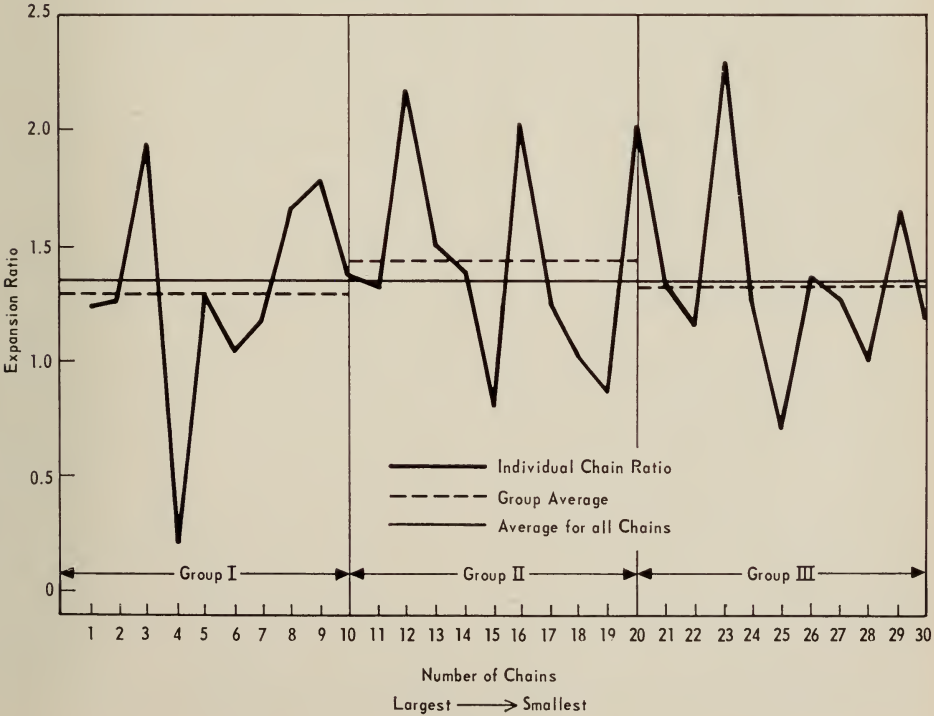
preted, indicates that average sales per store in the 30 chains have increased 60 per cent from 1953 to 1963. This figure is consistent with the increases in the average physical size of food stores and average number of items sold per store. For example, over the same period, the average number of items sold per store increased about 45 per cent and store size increased about 35 per cent.

The average expansion ratio of Group I was above that of Group II, but both were below Group III. In general, it seems that the smaller chains made the greatest advances in sales per store, while Group II had the lowest increase in sales per store. This should not seem overly surprising in view of the great increases in both sales and number of stores in Group II.

There is little or no similarity in the expansion ratios among chains of like size. Group II has the greatest range of variation, as would be expected, in view of the dynamic characteristics of this group.

Effects of growth

In view of the different rates of growth of the three groups of chains, the researchers turned their attention to the relationship between growth and the following important financial items:

- Profits,
- Merchandise inventory,
- Fixed assets (buildings and equipment),
- Accounts payable, and
- Net worth.

The graphic presentation in figures 14 through 18 depicts the effects of growth of chains by size groups on the financial factors listed above for the period 1953–1963.

Profits. Profit rates per dollar sales for each of the three size groups rose sharply from 1953 through 1955 and leveled off through 1957 (figure 14). A significant decline occurred in Group III chains from 1957–1961. A similar though less drastic decline affected Group II chains beginning in 1959. The larger chains in Group I, collectively, showed much less decline

than the small and medium chains. The researchers do not have a complete explanation for the sharp decline in net profits in two of the groups. In their judgment, however, the pressure of rising labor costs, technological changes requiring greater capital investment, and price-quality competition for customers and sales volume, which prevented prices from going much above those of the Group I chains, are the main reasons for the decline.

Merchandise inventory. For 1953, and from 1957 onward, the Group II chains' merchandise inventory as a percentage of current assets averaged lower than the other groups (figure 15). A factor that could have affected the inventory policy of the Group II chains was their greater reliance on wholesalers to perform the merchandise storage function. On an average, the 30 chains studied maintained a sales inventory ratio of 2 to 1 (see pages 26 to 29).

Fixed assets as a percentage of total assets generally rose for all chain groups from 1953 to 1960–1961, and for groups I and III the trend was upward through 1963. The sharp drop of percentage in Group II is explained partly by a relatively greater increase in leasing rather than ownership of buildings used in the merchandising operations (figure 16).

Accounts payable was the principal item of indebtedness in each of the chains studied. The rising importance of this method of financing expansion of food chains is shown in figure 17. After 1953, groups I and II began to rely more on open accounts as a source of credit financing. Group III also sharply increased its use of this form of credit after 1957.

Net worth. This marked increase in creditor financing by accounts payable should be considered in conjunction with the relative decline in net worth or owners' equities in relation to the total assets used by the business (figure 18). For Group II, a sharp downward change in owner financing began in 1955. A less drastic downward change occurred for Group III after 1959. Group I chains financed their expansion by increasing both forms of equities. The rapid growth of groups II and III chains would appear
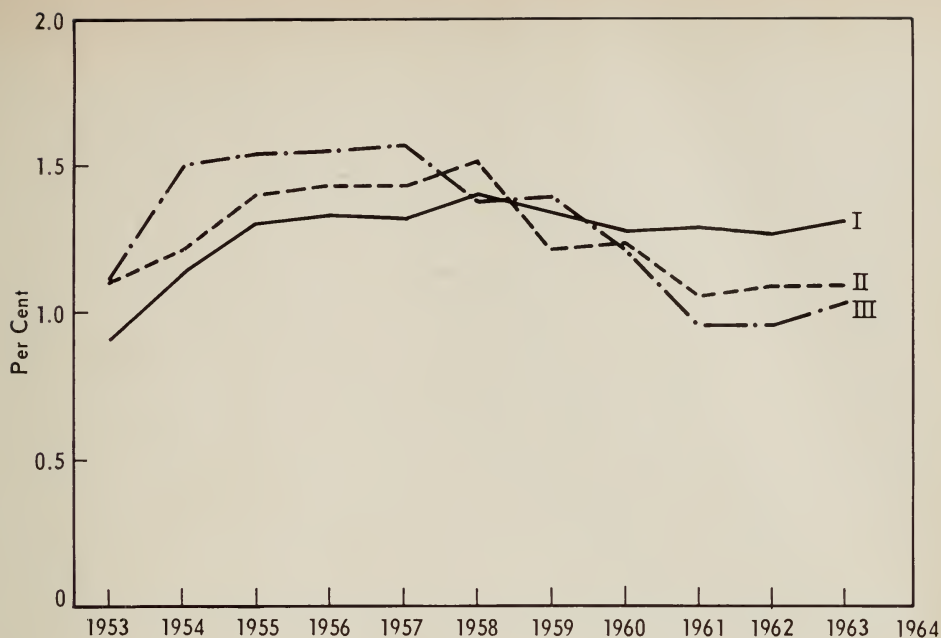
Fig. 14. (above) Net profit as a percentage of total sales. Source: Fairchild Publications, Inc., 1953–1963. Fig. 15. (below) Merchandise inventory as a percentage of current assets. Source: Fairchild Publication, Inc., 1953–1963.
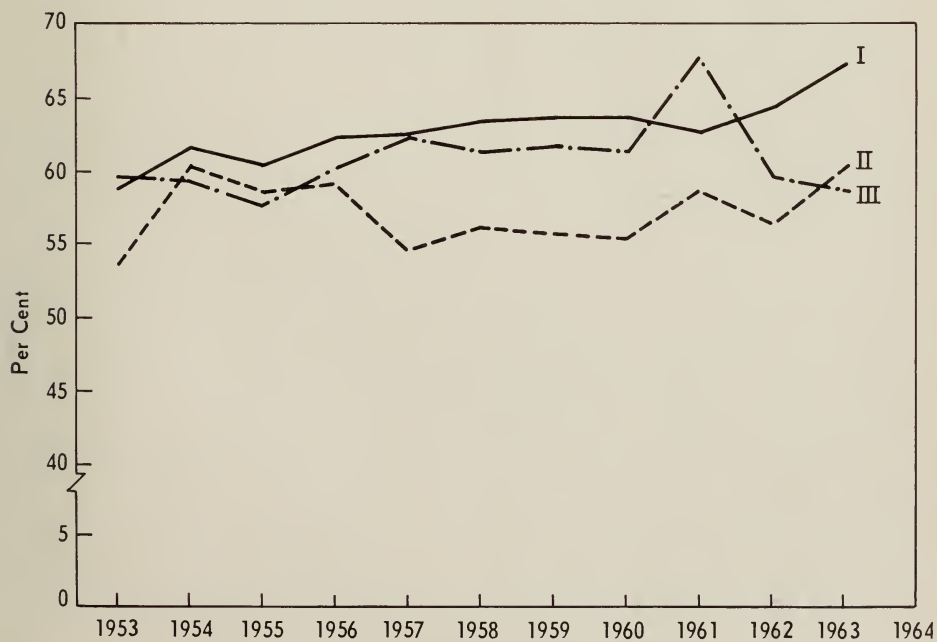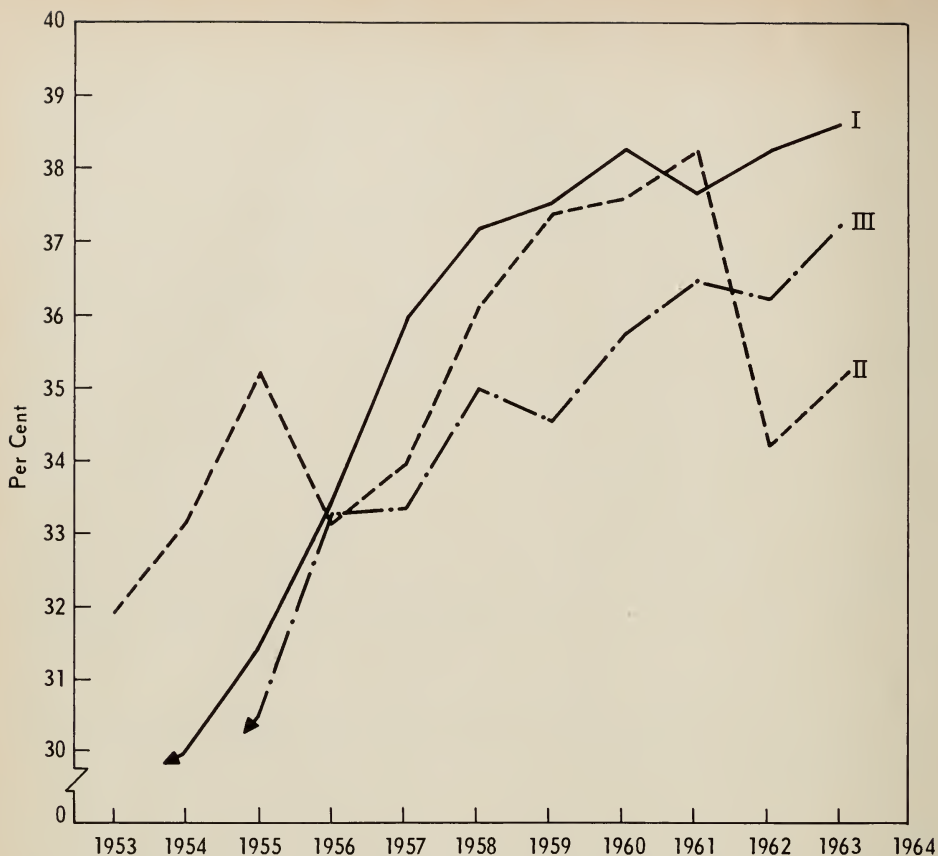
Fig. 16. Fixed assets as a percentage of total assets. Source: Fairchild Publications, Inc., 1953–1963.

to be supported by liberal credit from grocery wholesalers and/or brand-product manufacturers who were greatly dependent on small- and medium-size chains for access to consumers.

Financial interrelationships

The financial reports of the 30 chains studied provide one basis for a better understanding of certain management practices and their results. For this phase of the analysis, the three-group classification of chains (I, II, and III) is again used.

While the preceding discussion considered financial trends over time, the following appraises certain financial interrelationships which might exist within a chain or group of chains, irrespective of

time. For example, this analysis attempts to determine what relationship one financial factor has with another and how this relationship differs among chains and groups of chains.

Regression analyses (appendix C) were used to find the following relationships:

- **Net dollar sales** as a function of the number of stores,
- **Net dollar profit** as a function of the number of stores,
- **Inventory** as a function of net sales,
- **Current assets** as a function of inventory,
- **Fixed assets** as a function of total assets, and
- **Total liabilities** as a function of accounts payable and current liabilities.

Fig. 17. (above) Accounts payable as a percentage of current liabilities. Source: Fairchild Publications, Inc., 1953–1963. Fig. 18 (below) Net worth as a percentage of total assets. Source: Fairchild Publications, Inc., 1953–1963.
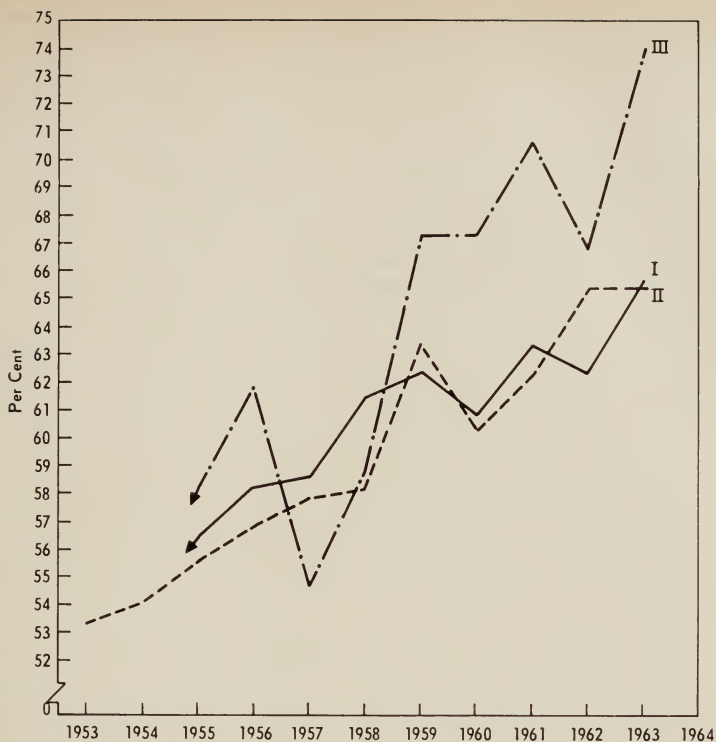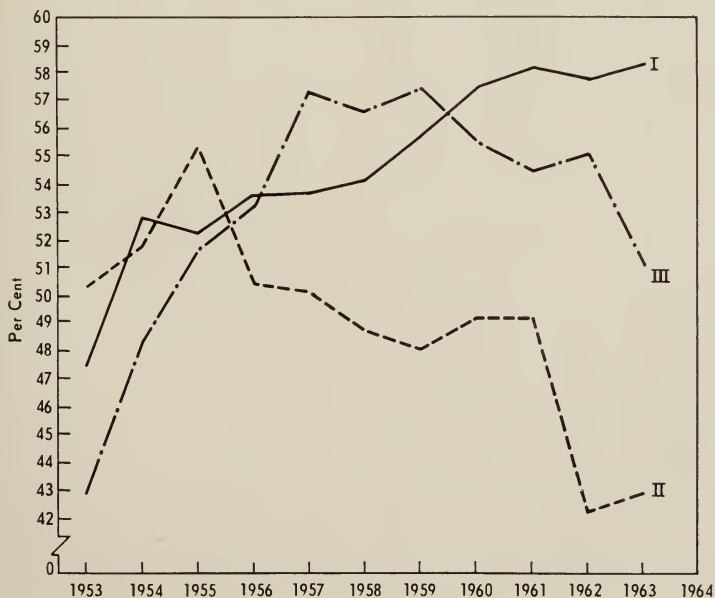
The 30 chains. A condensed presentation of results from the analysis for the 30 major retail food chains shows the following:

- As expected, a statistically strong, positive relationship was found between **net sales** and number of stores. Excluding the effects of location, a chain could expect on an average a total net sales increase of slightly more than $1 million by adding one retail outlet.
- Also, as expected, a positive relationship existed between **net profit** and number of stores. By increasing the number of stores by one, a chain could expect an increase in total net profit of approximately $11,000.[3] Paragraphs 1 and 2 tell us that for every new store, one could expect about 1.1 per cent of net sales to be retained as net profit (11,000 ÷ 1,-000,000).
- If net sales were to increase $1 million, it would be expected that the necessary **inventory** would increase by $500,000. This indicates that a 50 per cent backup in inventory is necessary for each dollar's worth of product sales.
- Associated with a $1 million increase in inventory, there would be a $1.5 million expected increase in **current assets.** This indicates the predominance of inventory in that current asset group.
- For a $1 million increase in total assets, one would expect a $390,000 increase in **fixed assets.** These results are consistent with figure 8 which shows fixed assets approaching 40 per cent of total assets. Unfortunately, the data do not disclose any information regarding the recent "buy-build-lease-back" trend used by chains to reduce the large amount of investment in fixed assets.
- Associated with a $1 million increase in accounts payable, there would be

a $1.65 million increase in **total liabilities;** and for a $1 million increase in total current liabilities, total liabilities would increase by $1.95 million. This latter comparison indicates that short-run debt, other than accounts payable, fluctuates more extensively than does accounts payable.

The three groups. A comparison of the three groups on the six points mentioned shows the following:

- **Net sales** were more responsive to store numbers in larger chains than in smaller ones, indicating that large chains are catching up with small chains in terms of average store size.
- **Net profit** responded to store numbers at approximately the $10,000 per store level, except for the smallest size chain group. However, store numbers, accounted for very small amounts of variation in net profits for groups II and III.
- The **inventory** response to net sales changes was relatively similar for all three size groups, coefficients ranging from .05 to .08.[4] This is reasonable because the "inventory margin of safety" should be about the same for all groups, considering the availability of products and the time required for delivery.
- The relationship between **current assets** and inventory change was consistent among the three groups, with coefficients of from 1.52 to 1.64. In all three groups, more than 90 per cent of the variation was explained by the equation. This relationship is to be expected since inventory accounts for a major part of the total current assets of retail food firms.
- In the fifth equation also, consistent results were obtained from the analysis of the three groups. **Fixed assets** were shown to change at about one-third the magnitude of total assets, and about 90 per cent of the variation was explained by the factor con-

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[3] Slightly overestimated because of the approximately 10 per cent increase in the retail food price index during the observation period 1953–1963.

[4] Coefficient statistics such as these indicate the extent and direction of a response by the dependent factor, given a one-unit increase in the size of the independent factor. For example, given a $1 million increase in net sales, it can be expected that inventory requirements will increase (positive coefficient) by $500,000 to $800,000.

sidered. Again, this correlation fails to distinguish differences among firms with respect to the ownership or lease method for obtaining buildings and equipment.

- In the sixth equation, different relationships were found for the three groups; however, in most cases the results were statistically significant. This indicates that **total liabilities** responded quite differently to accounts payable and total current liabilities in the three size groups. Even though there was considerable variation among groups I, II, and III, the results indicated a heavy reliance on open account purchases of merchandise for resale by all the chains.

The individual chains. As mentioned, Group II was the most expansion oriented. For this reason, each of the 10 chains in this group was analyzed separately, using the same six equations. A brief glance at the regression coefficients is sufficient to show the large extent of variations among chains' operations. The magnitude, as well as the direction of the relationships, varied considerably among chains. Relationships among equations number 3, 4, and 5 were consistent. Equation 3 shows that each chain's inventory responded similarly to net sales; equation 4 shows an impressive relationship between current assets and inventory; and equation 5 again points out the 30–40 per cent responsiveness of fixed assets to total assets. It is worth noting that in the second relationship, the net profit of some of the Group II chains responded favorably to increased store numbers, while others did not. This suggests a great difference in individual new-store profitability.

INDUSTRY PERFORMANCE AND PUBLIC POLICY

Methods used

The preceding discussion shows the more favorable earnings record of the chains in Group I. The smallest chains, Group III, had the least favorable earnings record. On the other hand, the medium-sized chains, Group II, were expanding faster in terms of both sales and outlets. It could be that the management objective of firms in both groups II and III was to compete for sales volume by means of prices and/ or services.

Here are three management practices that might keep groups II and III earnings below those of competing chains in Group I:

- "Follow-the-leader" pricing, even though the delivered on-the-shelf cost of products might exceed those of chains in Group I. This would result in a lower net, assuming handling costs are comparable.
- Lower markup and prices on merchandise which would yield a lower net, assuming handling costs are comparable.
- "Follow-the-leader" on prices for products, plus extra customer services which add to the retailers' handling costs and thereby reduce net earnings.

Undoubtedly, the various firms use all three of these practices to meet competitive conditions relative to specific products or product groups. For example, a firm might have a "follow-the-leader" pricing system for meat and a low markup and pricing policy for fresh fruits and vegetables. The lower prices would be designed to draw customers and would constitute a form of sales promotion cost. This is consistent with the objective of a firm that wishes to expand or perhaps hold its business, the ultimate goal being to achieve higher profits by means of the scale economies of buying and selling merchandise.

Growth patterns

The total sales of the food chains have continued to rise faster than nonchain retail firms. This increase began during the mid-1940's and gained momentum with the removal of price controls and rationing in 1946 (figure 19). This trend toward concentrating more sales in fewer retail food firms has brought forth charges of an unwarranted concentration of economic

Fig. 19. Chain store sales as a percentage of all grocery store sales for selected years. (Chain stores are considered firms with 11 or more outlets.) Source: Progressive Grocer, 1952–1964.

power that has been, and will continue to be, harmful to our nation's economy (U. S. Federal Trade Commission, 1960, p. 1.) Let us examine the major aspects of the allegation.

Although it is true that the corporate chains are rising in the grocery business, additional chains entered the market between 1953 and 1964 and are competing successfully for a greater share of the total grocery store business (table 9). For example, the 1962 sales of each of the two largest chains, A & P and Safeway, proportionately were below their 1954 share of the total. Table 13 and figure 20 indicates the rise in the relative importance of the small chains within the group of 30 firms under study. The substantial increase in the number of small chains (table 8) suggests the absence of an effective barrier to entry in food retailing (Mooney, 1964).

The growth pattern of chain sales as a percentage of all grocery store sales is shown in figure 19. The change in the distribution of sales among the 30 large chains, according to size, is brought out in table 13 and figure 20. According to the data that could be obtained, the Group II and III chains are growing relatively faster than the Group I chains. Should this trend continue, there would be a virtual elimination of the very small chains now represented by Group III. In an effort to get some further statistical verification of the probability that smaller chains will continue to move into a higher sales level and achieve a greater relative share of the total sales of the 30 chains under study, the authors experimented with various techniques, one of which was the "Markov Chain" procedure, which is discussed in appendix D. The calculations also presented in appendix D and graphically in figure 21 indicate the following:

Table 13

CONCENTRATION OF NATION'S 30 MAJOR RETAIL FOOD CHAINS

Chain	Average total net sales (1953–1963) $15,389,399		Total net sales (1962) $19,039,659		Total net sales (1954) $11,167,604	
	Percentage of total	Accumulated total	Percentage of total	Accumulated total	Percentage of total	Accumulated total
	per cent					
1........	30.35	30.35	27.51	27.51	35.72	35.72
2........	14.40	47.75	13.17	40.68	16.24	51.96
3........	10.63	55.38	10.22	50.90	9.93	61.89
4........	5.17	60.55	5.42	56.32	5.41	67.30
5........	4.88	65.43	5.13	61.45	4.66	71.96
6........	4.10	69.53	4.84	66.29	3.96	75.92
7........	3.53	73.06	4.04	70.33	3.12	79.04
8........	3.49	76.55	3.72	74.05	3.12	82.16
9........	2.76	79.31	3.36	77.41	2.18	84.34
10........	2.66	81.97	2.90	80.31	2.04	86.38
11........	2.61	84.58	2.61	82.92	1.81	88.19
12........	2.18	86.76	2.60	85.52	1.49	89.68
13........	1.85	88.61	2.04	87.56	1.19	90.87
14........	1.21	89.82	1.50	89.06	1.16	92.03
15........	1.09	90.91	1.46	90.52	.96	92.99
16........	.94	91.85	1.22	91.74	.84	93.83
17........	.93	92.78	1.09	92.83	.79	94.63
18........	.93	93.71	.92	93.75	.77	95.39
19........	.90	94.61	.90	94.65	.63	96.02
20........	.71	95.32	.70	95.35	.56	96.58
21........	.65	95.97	.63	95.98	.55	97.13
22........	.64	96.61	.56	96.54	.52	97.65
23........	.62	97.23	.55	97.09	.49	98.14
24........	.57	97.80	.54	97.63	.43	98.57
25........	.48	98.28	.46	98.09	.36	98.93
26........	.47	98.75	.45	98.54	.34	99.29
27........	.32	99.07	.42	98.96	.24	99.51
28........	.32	99.39	.36	99.32	.23	99.74
29........	.32	99.71	.34	99.66	.14	99.88
30........	.29	100.00	.32	100.00	.13	100.00

- Smaller retail firms will tend to increase their relative share of the total sales of the 30 chains.
- Larger firms can be expected to lose some of their relative share of the sales of the group of 30 chains.
- Both the small and large chains that were operating in 1954 will move toward or into size classification E which, relative to total sales, is smaller than the largest size group F.
- Given the assumptions on which the projection is based, the 30 chains move toward a structural equilibrium. In other words, smaller firms will become larger and larger firms will become relatively smaller.[5]

The most obvious deduction from the preceding analysis is that chain firms will tend to become larger. In view of this tendency and the allegations in the U. S. Federal Trade Commission Resolution of October 9, 1958, that the concentration of economic power in the food industry may restrict competition by collusive price action and unfair competitive methods (U. S. Federal Trade Commission, 1960), the probable growth pattern deserves further attention.

Growth in the size of food chains has been accomplished by means of (1) internal growth—a reinvestment of earnings, expansion of borrowings by the firm, and/or sale of stock; (2) purchase or acquisition of other firms; and (3) merger. The usual purpose of this drive toward

[5] Small-chain entries into the market during this period are possible, but we are unable to analyze such movements in our "closed market" study (see appendix F).
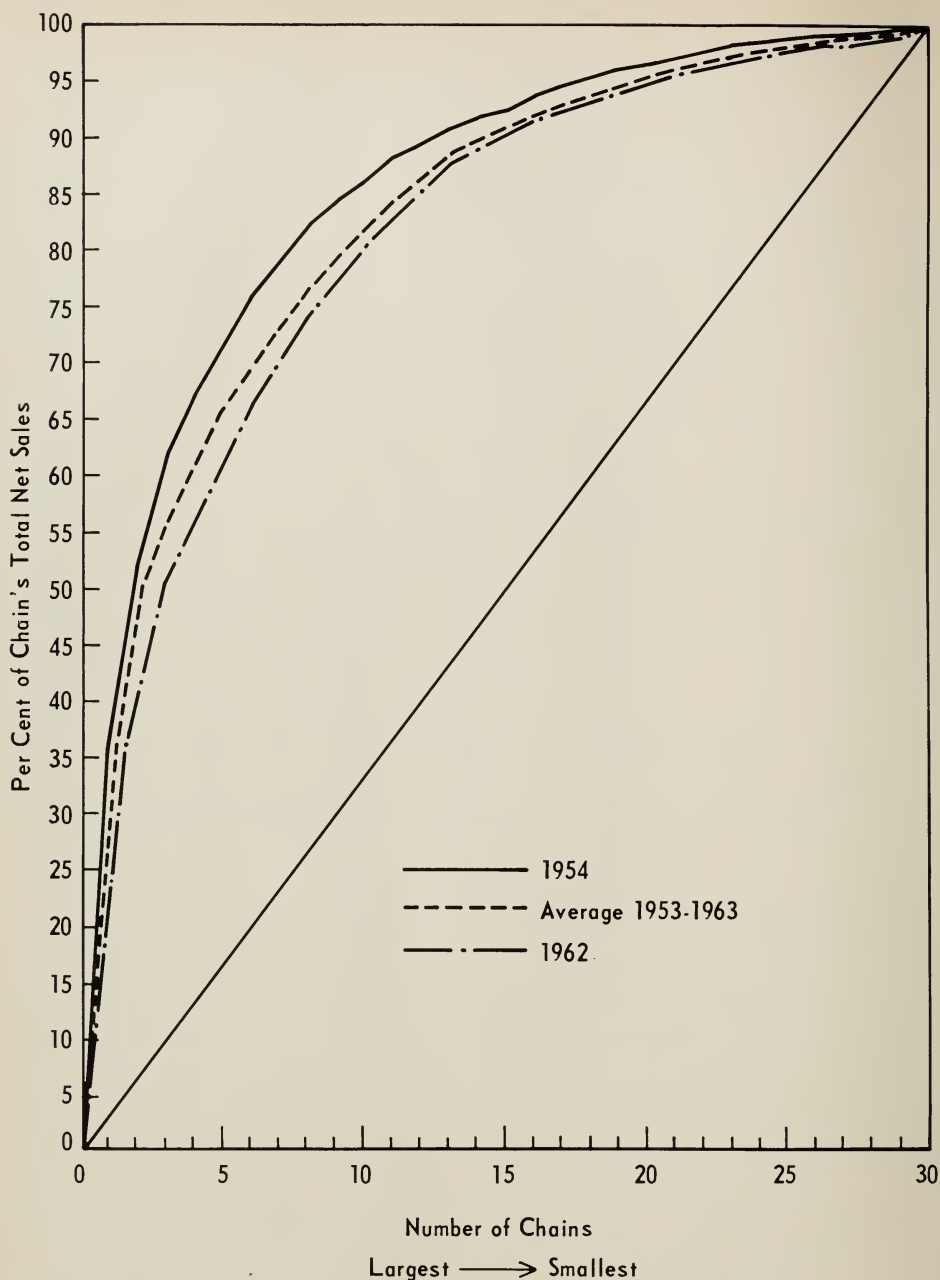
Fig. 20. Retail food chain concentration among 30 major chains. The 45° line represents an industry of 30 firms in which every firm is of equal size, i.e., 5 per cent of the firms have 5 per cent of total market sales, 10 per cent of firms have 10 per cent of market sales, etc. Source: Table 13.
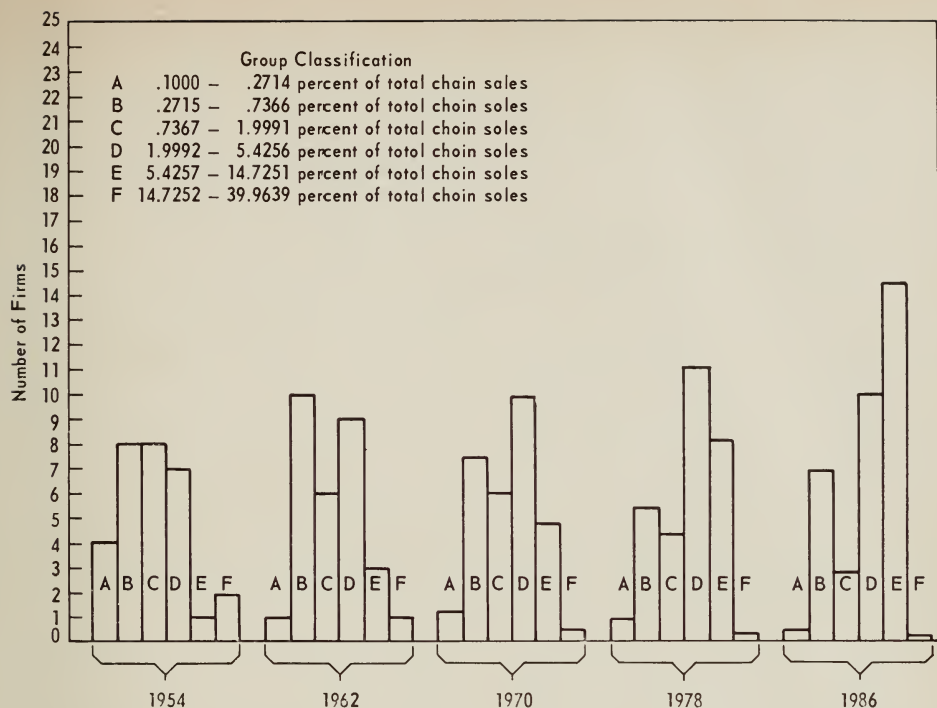
Fig. 21. Distribution of 30 major chains by size in 1954 and 1962, and projections by eight-year intervals through 1986. Source: Appendix D.

"bigness" has been to improve the total net earnings of the firms through mass buying and selling of merchandise.

Because one of the effects of mergers and acquisitions is to reduce the number of firms and ownership entities, such actions could be regarded as a method of reducing competition. Conversely, they could be looked upon as the only means of economic survival in an industry in which certain operating efficiencies, e.g., purchasing and advertising, are a function of sales volume. Even single-store grocery firms that do not want to integrate in an ownership sense are often achieving the basic economies of mass buying and warehousing through retailer-owned cooperative associations or wholesaler-sponsored buying groups.

Internal growth is usually characterized by reinvesting earnings or borrowed funds in larger stores and other facility improvements. This usually forms a part of a general modernization and replacement program of the firm. Capital for these purposes is less frequently obtained from the sale of stock.

Food firms have been seeking to increase their sales volume and net earnings or profits in a number of ways other than those discussed on page 29. Rapidly growing chains often are attaining their goal of increased sales by expanding the number of store outlets. Others are increasing the number of stores and the size of stores, either by modernizing old or building larger new stores. The well-established large chains appear to be going through a store modernization and consolidation process, the outcome of which seems to be a temporary reduction in the total number of stores operated by a firm. In addition to varying the size and/or number of stores, another approach to increasing sales and profits has been to find the most desirable locations for the stores operated by the firm. This has meant adjusting location plans to population movements. A

[33]

third approach has been to vary the number and quality of services offered to consumers. This has been characterized by the development of small, convenience-type stores (superettes) featuring quick service and long store hours; and minimum service or "discount" stores."

Effect of population changes on number and location of grocery stores

The assumption that "trade follows people" is especially applicable to the business of supplying food to our population. The almost complete dependence of our people on retail grocery stores is indicated by the following discussion.

The past 10 years have been characterized by a rather steady increase in the United States population and a sharp decline in the number of retail grocery stores. Based on the available data, the authors estimate that the number of people per grocery store has increased from an average 465 in 1955 to 828 in 1964. Demographers currently predict an increase of 24,240,000 people by 1975. It also seems highly probable that grocery store numbers will continue to decrease; however, the rate of decline may taper off somewhat.[6]

In general, therefore, we should be able to make some statements as to the future movement of the "population per store" statistic. As shown in figure 22, this statistic has increased in an almost linear fashion over the past 10 years. A linear extrapolation of this trend leads us to expect that in 1975 the average United States grocery store will be serving approximately 1,300 people. One's first impression would tempt him to deflate this estimate in view of this tapering off in the rate of decline of the number of grocery stores. However, this tendency is counterbalanced with the assumption that those new stores, which will be built in the future, are likely to be even larger in size than most current stores.

Given the United States population projection and the average size (1,300 persons per store) of the retail grocery store in 1975, the estimated number of additional retail grocery stores which will have to be built in the United States over the next 10 years in order to maintain the current level of service or market performance equals 18,648.[7] This change is approximately an 8 per cent increase over current store numbers.

The typical procedure generally would be to apply the above technique to more specific areas such as a particular state or even a metropolitan area in order to obtain more applicable results. Unfortunately, this procedure cannot be followed because the data used in this study deal basically with industry, structural changes, and market characteristics on a national basis. Therefore, any attempt to apply the general conclusions and/or projections to a smaller geographic area can only result in reducing the validity of the end product.

To illustrate further this graphical limitation, we shall choose a particular state and a metropolitan area, discuss its particular and differentiating market characteristics, and then demonstrate the resulting inconsistencies.

Demographers predict that California can expect an increase in population of 4,590,000 people by 1975. By using the national projection of expected store size, one could conclude that California would need approximately 3,500 additional grocery stores. However, the California retail food industry has experienced a growth pattern quite different from that of the nation as a whole. Since the 1940's, California has experienced a massive growth in its population. This population has spread itself over areas which were uninhabited desert a short time before. The retail food industry has been forced to follow this population movement by building a large number of stores. While the majority of other states have had a decrease in the number of grocery stores, California has experienced a 50 per cent increase in grocery store numbers over the past 10

[6] Past declines in grocery store numbers can be partially attributed to the business failures of the small "corner grocers." Since corner grocers are no longer so numerous, their decline in numbers will be of a smaller magnitude.

[7] "Performance or service" is used here to indicate a measure of availability, quantity, and quality of food products currently available to the average customer in the average United States grocery store.
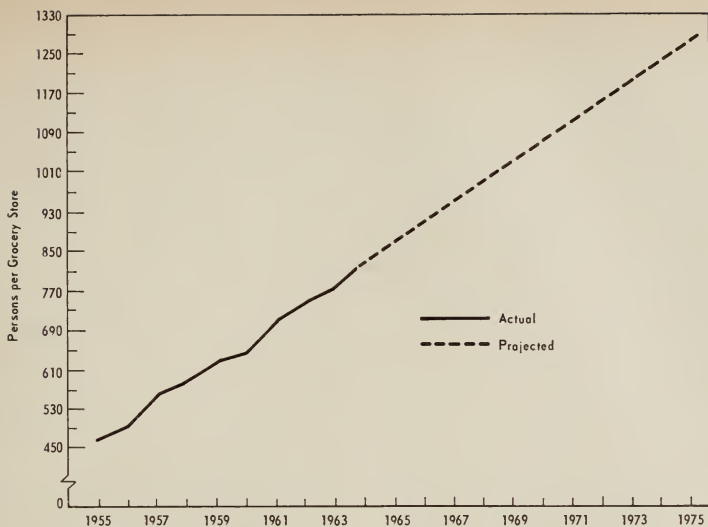
Fig. 22. Population per grocery store in U. S., 1955–1975. Source: *Progressive Grocer*, 1955–1965; Appendix table D-3; and Bureau of Census, 1965.

years (see appendix table B-1). As a result, population per store has remained relatively constant at about 870. Therefore, if this present population to number of grocery stores ratio continues, California will require approximately 4,300 (as compared with 3,500) additional grocery stores by 1975.

A similar inconsistency would occur if national data were applied to an ever smaller area such as the San Francisco-Oakland Metropolitan Area. While the estimated population increase of 1,890,000 people implies a substantial increase in store numbers, authorities have often described this particular area as "over-stored" and capable of meeting greatly increased consumer demands with the present store facilities. This further illustrates the need to analyze each market area individually, thereby avoiding the possible misfortunes resulting from the application of national projections.

Conduct and performance of chains

Mass distribution methods for food have been encouraged by technological advances; higher capital requirements; higher salaries, wages, and fringe benefits;

rising consumer disposable income; and population concentration. These forces also have been behind the mass production of food and nonfood products. In any case, mass distribution practices and chains seem to be interwoven. This implies a concentration of economic power in the food field. The real economic and legal issue is how the chains use this power which comes from their dominance of sales.

With the few exceptions which are a matter of court record, there is not much to support or refute any charge against the food chains of any overt misuse of their market power, either as buyers of goods to be resold to consumers or as retailers. The available statistical evidence shows that the medium and large retail chains are winning the competitive struggle for customers and sales. It does not show that competition is being eliminated. In fact, the research department of the largest security investment firm in the United States rates only one firm's common stock—Great Atlantic and Pacific Tea Company—as a recommended high-quality, investment-type risk. All others are average or speculative-type investments (Merrill Lynch *et al.*, 1966). The basics reasons for the low investment appraisal are keen competition and overexpansion. In view of the charges

that competitors are being eliminated by a misuse of economic power, the advice of the investment firm to its clients is inserted here.

In relation to other segments of the economy, the food-chain industry fared poorly in 1965; and indications are that business will continue to be characterized by intensely competitive conditions and pressure on profit margins during the current year. . . . Despite this relatively poor performance, food chains continue to expand outlets, causing overstoring in certain areas of the country and intensified price competition as the chains try to build adequate volume in the new units. In some areas, the situation has been further aggravated by discontinuing trading stamps and by converting many units to a "discount" image. Under existing conditions, many companies are having difficulty passing on increases in wholesale costs of food, particularly meat.

On the positive side, a number of companies continue to register sastisfactory earnings gains as a result of new-store expansion, above-average population growth in their operating areas, and the ability to increase their share of markets by effective merchandising.

Conclusive evidence shows a growing concentration of sales in the retail chains, and also a corresponding concentration of buying power. However, this structural characteristic does not connote an arbitrary use of market power to frustrate normal marketing and pricing processes. It is possible that the large retail chains would be at a disadvantage during periods of short supply in obtaining the quantities of uniformly graded products to meet their demand. This has happened a number of times since 1941, particularly during the World War II period when price ceilings and product rationing were used.

Many of the complaints about "unfair" buying practices and "market manipulation" originate with growers and shippers of fresh fruits and vegetables. Because of repeated complaints from lettuce growers and shippers in Salinas, Miklius and DeLoach (1965) chose to examine the basis for the charge of "market manipulation" by chains. The researchers had three ob-

jectives in mind: to investigate available evidence regarding the change in the number of buyers and sellers in the market; to estimate the relative volumes bought by the principal chains; and to investigate the purchasing patterns of the three principal buyers in order to learn whether their patterns resembled those which could be expected in an oligopsony market. The principal findings were:

- Although the records are incomplete, it appears that the number of lettuce buyers declined during the decade 1953–1963. The change was neither drastic nor abrupt, and it was offset, to some extent, by a decrease in the number of shippers.
- The three principal chain buyers accounted for a relatively small share of the market. During the 92 days of the 1963 shipping season, they purchased about 10 per cent of the daily supply of Salinas lettuce.
- The principal buyers paid either average or above-average market prices. Their purchasing patterns did not show interdependence in the variation of quantities purchased.
- The study did not disclose any overt attempt by the buyers to follow a strategy of withdrawing from the market during periods of falling prices, which would have encouraged a further price decline.

The authors recognized the weaknesses of the approach used; nonetheless, they believe that the same research approach would be applicable to other commodities and the results would be very useful to a better understanding of the conduct of the large retail food firms.

Viewing the chains as sellers, one must face the problem of a concentration of economic power in terms of market domination. The declining importance of the small, independent retailers is evident from the statistics already presented. It also is equally clear that the small store, regardless of ownership arrangement, is under severe competitive pressure. But this pressure usually arises from the inability of the small operator to fit into a pattern of mass buying and selling. The best illustration of this economic pressure

on small retailers is found in the current policy of most retailer-owned cooperative buying groups which either deny membership to small retail firms, set up subsidiary organizations to supply them, or charge special service fees for small volume transactions. Cooperatives make no effort to encourage small retailer members to retain their membership. Since the small stores lack sales volume, they also lack purchasing volume and bargaining power, even among independents.

The claim that chains have resorted to unfair selling practices generally means that the claimant believes that chain prices, particularly on specials, often are lower than wholesale costs to the small operator, or that the quality of chain products and other consumer services are inferior. Many states have sought to end below-cost pricing by means of minimum price laws. Also, state and federal laws forbid unfair selling practices. In view of the fact that relatively few court cases have been recorded as a result of actions to enforce these statutes, one might infer that most claims of unfair practices are questionable. If one chooses to accept the consumer as the judge of such questions as prices, services, and product qualities, one will see that they have largely shifted their patronage to large stores, either independent-affiliated stores or chains. Moreover, this shift took place when alternatives were available and it is continuing while alternatives are available.

The Bureau of Labor Statistics Food Price Index reflects the upward movement of retail prices for food (table 14). The United States Department of Agriculture's Market Basket Index reflects the rising spread between farm prices and retail prices of fresh and processed products sold in retail stores. Both indexes are used as a basis for the charge that "distribution costs too much," and that buying and selling practices of large retail firms are the principal reason (*Supermarket News*, 1966).

The U. S. Department of Agriculture has published an informative list of reports over the last 15 years dealing with retail margins on food and the components of those margins (Hamilton, 1959;

TABLE 14

AVERAGE RETAIL FOOD
PRICE INDEX
(1947–1949 = 100)

Year	Index	Year	Index
1964	125.5	1941	52.2
1963	124.0	1940	47.8
1962	122.0	1939	47.1
1961	121.1	1938	48.4
1960	119.7	1937	52.1
1959	118.2	1936	50.1
1958	119.4	1935	49.7
1957	115.4	1934	46.4
1956	111.7	1933	41.6
1955	110.9	1932	42.8
1954	112.6	1931	51.4
1953	112.8	1930	62.4
1952	114.6	1929	65.6
1951	112.6	1928	64.8
1950	101.2	1927	65.5
1949	100.0	1926	68.0
1948	104.1	1925	65.8
1947	95.9	1924	60.8
1946	79.0	1923	61.4
1945	68.9	1921	63.5
1944	67.4	1920	83.6
1943	68.3	1919	74.2
1942	61.3		

Source: U. S. Department of Labor, 1951 and 1952; 1961–1963.

U. S. Department of Agriculture 1957, 1965a and b). These reports have not considered profits in any great detail. On the other hand, they establish the fact that the rise in retail margins parallels the rise in the costs of the two components, labor and capital. The Department's reports state that the increases arose mainly from rates for labor and capital and a very substantial increase in the customer services included with the product purchased.

Considering the alternative channels available in most markets, there is no really sound basis for stating that retail store customers are being forced to purchase unwanted services other than those rendered in response to those customers. In a previous study, one of the present authors chose to approach the problem indirectly. He attempted to compare the prices and services of four stores of a large, highly successful consumer cooperative with those of four stores of comparable size operated by different food chains in the same California communities where labor contracts were operative and rentals

[37]

were fairly uniform.[8] The net price differences, including patronage dividends to cooperative members, were negligible. The customer services in the form of pre-cooked food, high-priced specialty products, and advisory services were slightly greater for cooperative patrons. Since there are relatively few successful consumer cooperatives in urban areas in the United States and the cooperative objective is to serve patrons at cost, the foregoing comparison implies that retail marketing margins are fairly well governed by input costs and that prices to customers must be competitive even between cooperatives and profit-type firms.

For the 30 chains for which data are available, the authors were able to establish a positive relationship between the size of the firm and net returns per dollar of sales or investment. Industry-wide data also are sufficient to compare food retailing profits with those of a few other industries; however, this type of comparison presents difficulties.

Because our economy consists of industries of varying sizes, dollar profits vary considerably. Hence, comparisons are in terms of profit ratios or percentage rates of return, either on sales or net worth.

Figures 23 and 24 contain a comparison of profits for selected industries for 1954, 1959, and 1964. The story about profits is rather simple. In condensed form, one may say:

● Profits as a percentage of both net worth and dollar sales rose steadily for four of the industry groups included in the comparison. For food retailing and agriculture, 1964 absolute profits were above 1954; however, 1964 profits were below those of 1959 for both retailing and agriculture.

Fig. 23. Comparison of profits as a percentage of sales, selected industries, 1954, 1959, and 1964. Source: Appendix table E–1. See footnote in that table for method used to arrive at net profits for agriculture.
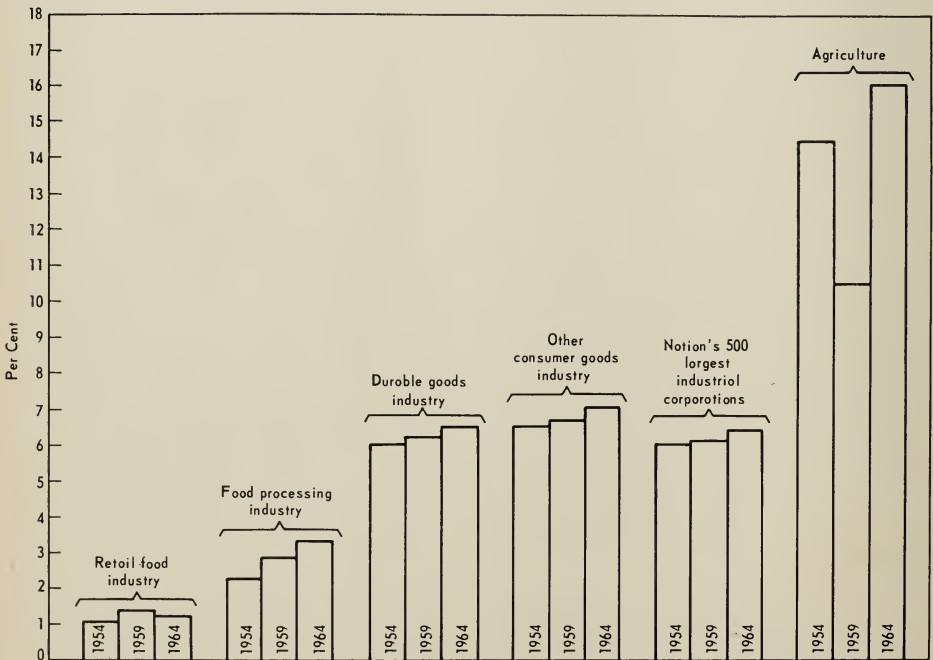
[8] DeLoach, D. B., A comparison of prices among selected retail food chains and a consumer Cooperative, 1964, 25 pp., unpublished manuscript.
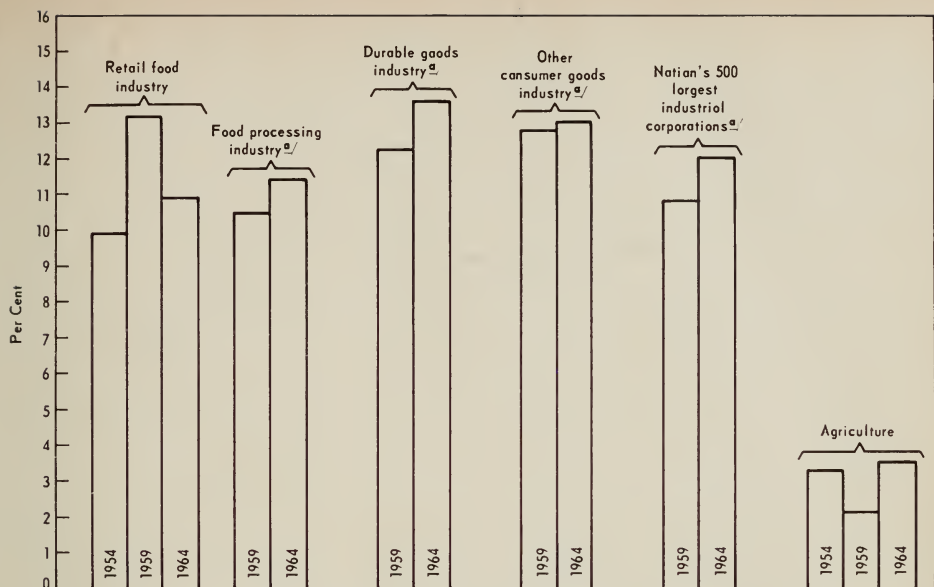
Fig. 24. Comparison of profits as a percentage of net worth, selected industries 1954, 1959, and 1964. Source: Appendix table E–1. See footnote in that table for method used to arrive at net profits for agriculture.

- The food retailing industry operated with the lowest percentage return per sales dollar; agriculture had the highest return per sales dollar.

Conversely, agriculture had the lowest percentage return on net worth; the food retailing industry's return on net worth was favorable. This latter comparison shows the effects of sales volume on the net return on capital, reflecting larger total profits for a large-volume, small-profit item than for a small volume, high profit product. In this respect, it is worth mentioning that the average U. S. farm produces enough food for 28 persons; the average retail grocery store supplies an average of more than 700 persons.

The food retailing industry usually shows its net profits as a percentage of dollar sales; agricultural groups state theirs in terms of return on net worth. These implied preferences are associated with the desires of the groups to convey a notion of "fairness" or "unfairness" of returns to them for the activities in which they are involved.

The food retailing industry, in common with other industries, has no criteria for determining what is a "fair" rate of return. Returns have been sufficiently high since 1946 to induce investors to provide adequate funds for expansion, either from new capital from outside sources or from retained industry earnings.

In reference to a "fair" return on owner's investment, various government agencies have arrived at about 10.5 per cent as a justifiable net profit rate.[9] By doing this, the government agency became a judge of "fairness." For the three years—1954, 1959, and 1964—food retailing was within an 8.8 to 13.1 per cent range. This percentage return is significant in view of the previously mentioned claims that the food chains are using their concentrated market power to hold farm prices down and retail prices up in order to gain excessive profits. Retailers also cite studies of their costs of operations to show increasing prices are a result of higher costs (England, 1959). The retail food industry also claims that it takes only $15 a year per family in the form of net profit for its services.

[9] The Interstate Commerce Commission recently used this figure in analyzing the possible existence of excess profit in the nation's public transportation sector. Similarly, the Federal Aviation Authorities used approximately the same return for domestic airlines.

GOVERNMENT REGULATION

The rapid growth in the economic power of grocery chains has forced some major adjustments in marketing channels and methods. The policy of larger chains to circumvent wholesalers and purchase direct from manufacturers and packers or growers, or even to engage in manufacturing and packing activities, has descreased the importance of wholesalers. The consumers' support of chains, as indicated by their patronage, concentrates selling power in relatively few firms, thereby enhancing the bargaining power of some chains in dealing with manufacturers. Finally, the shift of consumer patronage to chains or to large independent supermarkets has considerably diminished the economic power of small, independent grocers, but it has not lessened their political power.

In a competitive struggle for business survival, those who have been affected adversely by the growth of chains have sought to buttress their weakening economic position by appealing for public support or seeking legal constraints based on the precept of "preserving competition." by means of such activities they have had considerable influence in the development of whatever public policy we now have in the area of food distribution.

It is not the purpose of this paper to analyze state and federal activities which restrain the development and use of economic power in the market place. However, a few brief comments about this subject should suffice to describe the environment in which the growth of grocery chains is occurring. Most of these government activities are federal in origin; hence, the comments will relate to these only.

Legal restraints

The economic growth of the grocery chains has been influenced greatly by the various antitrust laws—Sherman (1890), Clayton (1914), Federal Trade Commission (1914), Packers and Stockyards (1921), and Robinson-Patman (1936). The essence of the antitrust legislation is to prevent or break down any undue concentration of market power which is, or threatens to become, a monopoly in restraint of trade or to regulate business conduct and trading practices that could be, or are, injurious to competitors. All such legislation is negative in the sense that it follows the principle of "thou shalt not."

Administration of the Sherman Act is a function of the U. S. Department of Justice. This department also shares with the U. S. Federal Trade Commission the responsibilities for enforcing the Clayton Act. The Robinson-Patman and U. S. Federal Trade Commission Acts are assigned to the U. S. Federal Trade Commission; the Packers and Stockyards Act to the Secretary of Agriculture.

In the past, investigators centered primarily on the large meat packers and general food manufacturers. Investigations have been centered on the food chains in more recent years, largely because they are disturbing to the small retailer and large meat packers and food manufacturers who have developed market interests which are being undermined by mass buying and selling practices.

With the exception of antitrust actions against A & P, the chains were relatively free of significant investigations until the early 1930's when Congress undertook a broad inquiry that subsequently resulted in the enactment of the Robinson-Patman Act. Since 1946, a number of Congressional and special Commission inquiries, U. S. Federal Trade Commission and Packers and Stockyard Administration actions, and Department of Justice suits have been instituted. Some have been concluded. A few observations regarding the current inquiry of the National Commission on Food Marketing, the activities and implications of the U. S. Federal Trade Commission, and court rulings on cases brought by the Department of Justice or other plaintiffs are contained in the following section.

Public opinion

When legal remedies are lacking, those who claim injury from competitive practices often seek relief by appealing to their legislative representatives for an investigation or an enactment of remedial legisla-

tion. A second procedure is to request an administrative agency to conduct an inquiry with a view toward recommending new legislation (U. S. Federal Trade Commission, 1960). A third procedure is to appoint a special committee or "prestige" commission to conduct an inquiry into an allegation of unfair practices and to present its findings to the Congress. This latter procedure is often used when established government agencies are unwilling to undertake such an inquiry or legislators or administrators wish to circumvent established agencies. Frequently, the real motive for the three types of inquiries is to focus public attention on the subject of the inquiry and thereby induce an alleged offender to mend his ways. In a sense, the public hearings conducted by various governmental bodies become a source of news for the several news media. The hearings can be and have been extremely damaging to the "image" of a particular firm or an economic group such as grocery chains (U. S. Congress, 1959).

The current inquiry of the National Commission on Food Marketing is an outgrowth of the unrest over rising food prices in retail store and low prices, particularly on beef cattle, at the farm level. Briefly, the Commission was asked to concern itself with past and future changes in the food industry; what is required to assure an efficient system of production, processing, and marketing while maintaining industry competition; methods for achieving a "desired distribution of power" and "desired levels of efficiency" within the system; the adequacy of government services and regulatory activities; and the effect of imported food on domestic producers, processors, and consumers (Ginsberg, 1966).

The National Commission on Food Marketing has been assembling and analyzing evidence bearing on the foregoing subjects. It seemingly has encountered all of the statistical difficulties faced by previous investigators who were trying to measure performance among the various sectors of food production and marketing. Among these difficulties are a lack of comparability of many products and customer services and rather wide variations in accounting procedures.

This lack of good statistics handicaps

any investigational body that is seriously seeking the best answer to the various economic problems associated with food production and marketing. Because the whole problem of the validity and adequacy of data has plagued both the industry and various governmental agencies for many years, it would appear that this problem needs to be resolved as a basis for a more complete understanding of the issues involved.

Current investigatory philosophy

Both the U. S. Department of Justice and the U. S. Federal Trade Commission have used their investigational authority to assemble and analyze statistics relating to the operating policies and practices of all sectors of the food industry. The objective of such inquiries generally has been directed toward either obtaining evidence about trade practices of a given firm, or about concentration of economic power. Inasmuch as the antitrust laws administered by the two agencies were passed to prevent undue concentrations of economic power and encourage competition, the administering agencies were given the task of defining "undue concentration" and "competition."

As is true with any legislation, the absence of precedents means that the administrators of quasi-judicial bodies such as the U. S. Federal Trade Commission build precedents by the manner in which they select firms to be charged with violations, the nature of their evidence, and their subsequent decisions. Similarly the Department of Justice has the responsibility for discoving and assessing the evidence of violations of specific statutes, obtaining indictments, and bringing the cases before the courts. The decisions of the courts are then used as precedents. By virtue of the authority of administrative agencies to institute or not institute an antitrust action, one finds a great variation in the application of the law and the importance the administrative authority attaches to different forms of business conduct.

The published literature on government regulation of monopolies indicates that there is far less than a consensus within and among our courts and various administrative agencies on what constitutes a

monopoly in restraint of trade. Certainly there has been uncertainty regarding what constitutes undesirable competitive practices. However, a measure of relief should emerge from the recent practice of the Antitrust Division of the Department of Justice to scrutinize proposed mergers.

In an effort to preserve and protect small businesses, the concept of the "optimum social competition" has emerged which means a bypassing of many basic economic considerations. It is under this social concept that the U. S. Federal Trade Commission has been instituting actions to prevent mergers on the theory that such mergers might be harmful to competition. For example, Section 7 of the Clayton Act recently has been used by the Commission to prevent structural changes which create or aggravate substantial market power in one firm, including changes that fall short of monopoly actions, in order to forestall anticompetitive behavior. Unlike other sections of the Act, Section 7 does not focus on whether or not an illegal merger or purchase action has occurred. Insted, it calls for an economic prediction of the competitive effects that are likely to follow from a proposed structural change that would further concentrate economic power. In other words, the Commission does not have to prove that further concentration will result in monopolistic pricing practices. It only needs to show that, on the basis of economic logic and industrial experience, such behavior is "reasonably probable."[10]

Recently, the Commission handed down a divestiture order based on the above relationship.[11] The case later was brought before the U. S. Supreme Court which reversed the Commission's decision and stated, "Probability can best be gauged by what the past has taught. We are convinced that the Commission has mistakenly rejected what the record demonstrates as to what actually happened in the past in favor of a future possibility based on conjecture and speculation."

Despite this court action, Robert A. Hammond[12] (a proponent of the philosophy accepted by the Commission) states, "The costs of such an approach (the insistence on the existence of a high degree of certainty prior to any antitrust statute enforcement) . . . might well result in the transformation of the structure of our economy in a way totally inconsistent with our reliance on competition as the primary economic regulator."

Retail food chains have shown considerable initiative and ability in adjusting to the legal constraints under which they must operate. The most outstanding example has been the need of firms to accommodate themselves to the Robinson-Patman Act. In this case, specific buying practices are forbidden as unfair and destructive to competition. Since it is the function of management to develop and use whatever legal and ethical business strategies it can in order to find an optimum solution to its problems, retail food firms turned their attention to finding other management procedures for keeping their procurement costs down. Frequently this meant the acquisition of their suppliers' businesses or the development of their own food processing or manufacturing operations.

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[10] *Brown Shoe Company versus United States,* 370, U.S. 294 (1962); and *United States versus Continental Can Company,* 12L ed. 2d. 953 (1964).

[11] *United States versus Kennecott Copper Corporation,* 231-F, Supplement 95, (S.D.N.Y.) 1964.

[12] Hammond, R. A., *Antitrust in an Expanding Economy,* paper presented at conference of National Industrial Conference Board, March 4, 1965.

APPENDIX A

TABLE A-1

POPULATION AND DISPOSABLE PERSONAL INCOME, BY STATES, 1954 AND 1964

State	Population			Per capita disposable income		
	1954	1964	Percentage change	1954	1964	Percentage change
	thousands			*dollars*		
Connecticut....................	2,208	2,816	27.5	1,984	2,791	40.7
Maine.........................	917	996	8.6	1,343	1,869	39.2
Massachusetts..................	4,857	5,505	13.3	1,663	2,535	52.4
New Hampshire.................	554	639	15.3	1,378	2,137	55.1
New Jersey.....................	5,249	6,688	27.4	1,872	2,605	39.2
New York......................	15,818	17,903	13.2	1,821	2,708	48.7
Pennsylvania...................	10,798	11,764	8.9	1,614	2,216	37.3
Rhode Island...................	817	927	13.5	1,579	2,197	39.1
Vermont.......................	375	405	8.0	1,283	1,942	51.4
Illinois........................	9,087	10,618	16.8	1,854	2,610	40.8
Indiana........................	4,266	5,019	17.7	1,649	2,222	34.7
Iowa..........................	2,631	2,808	6.7	1,484	2,122	43.0
Kansas........................	2,031	2,224	9.5	1,482	2,041	37.7
Michigan......................	7,040	8,617	22.4	1,686	2,359	39.9
Minnesota.....................	3,127	3,673	17.5	1,418	2,087	47.2
Missouri.......................	4,139	4,501	8.7	1,476	2,266	53.5
Nebraska......................	1,329	1,490	12.1	1,446	2,144	48.3
North Dakota..................	623	641	2.9	1,384	1,894	36.8
Ohio..........................	8,962	10,174	13.5	1,752	2,235	27.6
South Dakota..................	662	716	8.2	1,379	1,855	34.5
Wisconsin.....................	3,599	4,177	16.1	1,580	2,214	40.1
Alabama.......................	3,051	3,409	11.7	1,010	1,538	52.3
Arkansas......................	1,781	1,929	8.3	955	1,558	63.1
Delaware......................	366	511	39.6	2,102	2,783	32.4
District of Columbia............	828	810	2.2	2,156	3,003	39.3
Florida........................	3,462	5,798	67.5	1,313	1,957	49.0
Georgia.......................	3,651	4,268	16.9	1,126	1,755	55.9
Kentucky......................	2,912	3,143	7.9	1,103	1,687	52.9
Louisiana......................	2,887	3,516	21.8	1,204	1,650	37.0
Maryland......................	2,642	3,480	31.7	1,491	2,480	66.3
Mississippi....................	2,079	2,299	10.6	817	1,388	69.9
North Carolina.................	4,185	4,920	17.6	1,035	1,704	64.6
Oklahoma.....................	2,157	2,483	15.1	1,272	1,892	48.7
South Carolina.................	2,234	2,561	14.6	1,022	1,487	45.5
Tennessee.....................	3,364	3,809	13.2	1,118	1,678	50.1
Texas.........................	8,449	10,602	25.5	1,457	1,904	30.7
Virginia.......................	3,483	4,414	26.7	1,290	1,931	49.7
West Virginia..................	1,927	1,768	− 8.3	1,185	1,781	50.3
Arizona.......................	932	1,670	79.2	1,381	1,960	41.9
California......................	12,738	18,576	45.8	1,816	2,656	46.3
Colorado......................	1,520	1,990	30.9	1,499	2,252	50.2
Idaho.........................	589	699	18.7	1,338	1,819	35.9
Montana......................	613	708	15.5	1,604	2,004	24.9
Nevada.......................	215	401	86.5	1,984	2,998	51.1
New Mexico...................	784	996	27.0	1,313	1,779	35.5
Oregon........................	1,652	1,980	19.9	1,590	2,230	40.3
Utah..........................	762	1,001	31.4	1,379	1,935	40.3
Washington....................	2,539	3,080	21.3	1,744	2,273	30.3
Wyoming......................	300	346	15.3	1,750	2,214	26.5
Total U. S....................	161,915	193,468	19.5		2,225	

SOURCE: *Sales Management*, 1953–1965.

Table A-2

NUMBER OF GROCERY STORES, BY TYPE CLASSIFICATION, 1955–1964

Kind of store	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964
					number					
Grocery and combination stores										
Independents										
Grocery stores (without meat)	114,000	105,500	87,000	80,000	70,000	66,900	56,000	*	*	*
Combination stores (with meat)	198,100	196,000	180,000	175,500	171,500	170,400	161,000	220,000	214,455	201,000
Country general stores	16,000	15,500	17,000	16,500	16,000	15,500	15,000	10,000	9,500	9,000
Delicatessens	7,500	7,500	8,000	8,000	8,000	8,000	8,000			
TOTAL INDEPENDENTS	335,600	324,500	292,000	280,000	265,600	260,800	240,000	230,000	223,955	210,000
Chains (11 or more)										
Grocery stores	5,400	5,160	3,000	2,500	2,300	2,000	1,500	*	*	*
Combination stores	13,640	13,640	15,000	16,300	17,100	17,700	18,550	18,800	20,420	21,000
TOTAL CHAINS	19,040	18,800	18,000	18,800	19,400	19,700	20,050	18,800	20,420	21,000
TOTAL GROCERY AND COMBINATION STORES	354,640	343,300	310,000	298,800	285,000	280,500	260,050	248,800	244,375	231,000
Specialty food stores (chain and independent)										
Meat and fish	25,300	25,000	22,500	22,500	22,500	22,000	27,000	28,500	28,500	28,000
Bakery products	21,000	20,000	18,500	18,500	18,500	18,500	19,000	19,400	19,400	19,000
Fruit and vegetables	13,800	13,300	13,000	12,000	12,000	11,000	12,500	12,000	11,000	11,000
Candy and nuts	30,300	28,000	20,000	20,000	20,000	20,000	17,500	17,200	17,000	17,000
Dairy, milk, and eggs	16,900	15,000								
Other	2,700	2,700	17,000	15,000	15,000	14,000	15,000	15,000	15,000	15,000
TOTAL SPECIALTY STORES	110,000	104,000	91,000	88,000	88,000	85,500	91,000	92,100	90,900	90,000
TOTAL RETAIL FOOD STORES	464,640	447,300	401,000	386,800	373,000	366,000	351,050	340,900	335,275	321,000

* This classification is now included in "Combination stores."
SOURCE: *Progressive Grocer*, 1952–1964.

NUMBER, SIZE, AND SALES VOLUME OF GROCERY STORES, BY SIZE AND
TYPE CLASSIFICATION FOR SELECTED YEARS

Size of store	Number of stores						Per cent of stores					
	1953	1958	1959	1960	1961	1962	1953	1958	1959	1960	1961	1962
*Small**												
Chain	1.0	.4	.4	.4	NA	2.8	.3	.1	.1	.2	NA	1.2
Independent	272.0	195.0	192.0	168.0	NA	178.6	75.0	68.4	68.5	64.8	NA	75.7
TOTAL	273.0	195.4	192.4	168.4	163.9	181.4	75.3	68.5	68.6	65.0	66.0	76.9
*Superette**												
Chain	8.6	3.7	3.1	2.5	NA	2.8	2.5	1.3	1.1	1.0	NA	1.2
Independent	62.0	56.0	53.0	55.8	NA	24.5	17.1	19.6	18.9	21.0	NA	10.4
TOTAL	70.6	59.7	56.1	58.3	54.8	27.3	19.5	20.9	20.0	22.0	22.0	11.6
*Supermarket**												
Chain	10.3	15.3	16.2	17.1	NA	14.7	2.8	5.4	5.8	6.7	NA	6.3
Independent	8.6	14.6	15.8	16.2	NA	12.3	2.4	5.1	5.6	6.3	NA	5.2
TOTAL	18.9	30.0	32.0	33.3	30.1	27.1	5.2	10.5	11.4	13.0	12.0	11.5
All stores	362.6	285.0	280.5	260.0	248.8	235.9						

Size of store	Total sales						Proportion of sales					
	dollars						*per cent*					
	1953	1958	1959	1960	1961	1962	1953	1958	1959	1960	1961	1962
*Small**												
Chain	70	25	25	25	NA	230	.2	.1	.05	.05	NA	.4
Independent	6,785	3,500	3,350	4,250	NA	10,425	19.5	7.2	6.65	7.95	NA	18.5
TOTAL	6,855	3,525	3,375	4,275	4,350	10,655	19.7	7.3	7.00	8.00	8.0	18.9
*Superette**												
Chain	2,345	1,100	950	750	NA	845	6.8	2.3	1.90	1.40	NA	1.5
Independent	8,755	10,750	11,200	11,400	NA	6,725	25.2	22.2	22.20	21.60	NA	12.0
TOTAL	11,100	11,850	12,150	12,150	11,900	7,550	32.0	24.5	24.00	23.00	22.00	13.5
*Supermarket**												
Chain	10,060	17,500	18,500	19,675	NA	22,075	29.0	36.3	36.80	37.40	NA	39.3
Independent	6,700	15,400	16,300	16,500	NA	15,900	19.3	31.9	32.20	31.40	NA	28.3
TOTAL	16,760	32,900	34,800	36,175	38,200	37,975	48.3	68.2	69.00	69.00	70.0	67.6
All stores	34,715	48,300	50,325	52,600	54,450	56,200						

* By annual sales: Before 1962: Small (less than $75,000); Superette ($75,000-375,000); Supermarket (more than $375,000). For 1962: Small (less than $150,000-500,000); Superette ($150,000-500,000); Supermarket (more than $500,000).
Source: *Progressive Grocer*, 1952-1964.

AVERAGE EXPANSION INDICES OF CHAINS AND GROUPS*

Year	Net sales expansion index (Year average)			Number of stores expansion index (Year average)		
	Group I	Group II	Group III	Group I	Group II	Group III
1953.................	100.0	100.0	100.0	100.0	100.0	100.0
1954.................	107.8	111.6	103.6	97.8	98.9	100.0
1955.................	114.9	125.6	118.6	96.5	107.5	112.2
1956.................	125.2	146.9	146.8	96.3	118.3	124.4
1957.................	136.0	183.9	168.0	96.9	124.7	126.8
1958.................	145.7	206.4	190.9	98.7	134.4	139.0
1959.................	156.9	226.0	201.5	100.0	148.4	161.0
1960.................	160.4	244.9	216.6	100.3	160.2	163.4
1961.................	165.2	262.1	224.9	100.7	174.2	175.6
1962.................	170.7	290.7	242.3	100.8	167.7	141.5
1963.................	184.4	313.4	279.9	109.5	164.5	192.7

Chain*	Net sales expansion index (Chain index)			Number of stores expansion index (Chain index)		
	Group I	Group II	Group III	Group I	Group II	Group III
1, 11, 21..............	124.4	176.8	113.5	100.5	134.4	86.8
2, 12, 22..............	126.5	251.8	112.9	101.3	115.5	98.0
3, 13, 23..............	154.6	211.8	298.1	81.9	140.8	129.7
4, 14, 24..............	146.6	136.4	170.3	73.8	97.9	140.0
5, 15, 25..............	162.5	185.5	88.0	124.7	237.0	125.0
6, 16, 26..............	215.7	195.8	323.9	207.4	96.3	237.5
7, 17, 27..............	267.0	345.4	164.0	228.0	277.1	126.9
8, 18, 28..............	126.5	161.8	321.4	75.0	160.7	320.0
9, 19, 29..............	230.8	230.0	423.4	128.2	268.8	256.3
10, 20, 30.............	175.3	217.9	178.7	127.0	108.5	152.6

* Group I, chains 1–10; Group II, chains 11–20; Group III, chains 21–30 (see table A-5 for identification).

EXPANSION RATIOS OF CHAINS
AND GROUPS*

Chain number	Chain	Ratio
1	A & P	1.238
2	Safeway	1.248
3	Kroger	1.888
4	American	.199
5	National Tea	1.303
6	Food Fair	1.040
7	Winn Dixie	1.171
8	First National	1.688
9	Grand Union	1.801
10	Colonial	1.380
	Group I Average	1.296
11	Jewel Tea	1.316
12	Wrigley	2.779
13	Loblaw	1.504
14	Bohack	1.393
15	Penn Fruit	.782
16	Red Owl	2.034
17	Lucky Stores	1.246
18	Weingarten	1.006
19	Mayfair Markets	.856
20	Thorofare	2.000
	Group II Average	1.432
21	Fisher Bros	1.308
22	Purity Stores	1.152
23	Thriftimart	2.298
24	Market Basket	1.216
25	Shopping Bag	.704
26	Daitch Shopwell	1.364
27	Alpha Beta	1.292
28	Food Mart	1.004
29	Marsh, Inc	1.652
30	Bayless	1.171
	Group III Average	1.316

* Net sales index divided by store expansion index.

APPENDIX B

Table B-1

FOOD STORES, SALES, POPULATION, AND DISPOSABLE INCOME, BY STATE, 1954–1964

State	Food store			Sales of food stores			Population			Supermarkets			Per capita disposable income		
	number		Decrease or increase	dollars		Decrease or increase	number		Decrease or increase	number		Decrease or increase	dollars		Decrease or increase
	1954	1964	per cent	1954	1964	per cent	1954	1964*	per cent	1954	1964	per cent	1954	1964	per cent
Connecticut	3,476	3,473	−.001	723,613	1,049,297	.450	2,208	2,816	.275	216	495	1.292	1,984	2,791	.407
Maine	2,733	1,949	−.287	272,832	336,644	.234	917	996	.086	74	199	1.689	1,343	1,869	.392
Massachusetts	6,858	6,172	−.100	1,488,885	1,925,489	.293	4,857	5,505	.133	459	834	.817	1,663	2,535	.524
New Hampshire	1,267	1,328	.048	173,179	260,908	.507	554	639	.153	52	154	1.962	1,378	2,137	.551
New Jersey	7,804	4,777	−.388	1,702,584	2,367,364	.390	5,249	6,688	.274	512	907	.771	1,872	2,605	.392
New York	22,014	16,238	−.262	5,214,876	6,338,022	.215	15,818	17,903	.132	1,420	2,887	1.033	1,821	2,708	.487
Pennsylvania	20,837	11,690	−.439	2,987,792	3,536,064	.184	10,798	11,764	.089	859	1,737	1.022	1,614	2,216	.373
Rhode Island	1,428	751	−.474	236,873	280,881	.186	817	927	.135	85	141	.659	1,579	2,197	.391
Vermont	826	686	−.169	108,323	139,487	.288	375	405	.080	24	93	2.875	1,283	1,942	.514
Illinois	14,160	12,953	−.085	2,465,874	3,494,012	.417	9,087	10,618	.168	939	1,841	.961	1,854	2,610	.408
Indiana	6,812	6,477	−.049	1,049,984	1,466,963	.397	4,266	5,019	.177	378	783	1.071	1,649	2,222	.347
Iowa	4,459	4,649	.043	579,359	799,504	.380	2,631	2,808	.067	202	537	1.658	1,484	2,122	.430
Kansas	3,387	3,984	.176	465,232	641,999	.380	2,031	2,224	.095	186	460	1.473	1,482	2,041	.377
Michigan	10,932	10,037	−.082	2,041,179	2,741,871	.343	7,040	8,617	.224	646	1,343	1.079	1,686	2,359	.399
Minnesota	4,901	5,639	.151	736,444	1,003,023	.362	3,127	3,673	.175	219	579	1.644	1,418	2,087	.472
Missouri	6,970	6,826	−.021	927,951	1,336,783	.441	4,139	4,501	.087	309	770	1.492	1,476	2,266	.535
Nebraska	2,010	2,471	.229	311,482	415,334	.333	1,329	1,490	.121	109	307	1.817	1,446	2,144	.483
North Dakota	1,040	1,057	.016	117,216	146,990	.254	623	641	.029	31	91	1.935	1,384	1,894	.368
Ohio	13,636	12,900	−.054	2,446,354	3,261,156	.333	8,962	10,174	.135	756	1,665	1.202	1,752	2,235	.276
South Dakota	980	1,100	.122	127,148	173,593	.365	662	716	.082	41	123	2.000	1,379	1,855	.345
Wisconsin	5,956	6,205	.042	919,887	1,227,714	.335	3,599	4,177	.161	261	721	1.762	1,580	2,214	.401
Alabama	7,691	3,451	−.551	543,374	880,104	.620	3,051	3,409	.117	159	479	2.013	1,010	1,538	.523
Arkansas	5,058	2,779	−.447	285,557	439,191	.538	1,781	1,929	.083	69	275	2.986	955	1,558	.631
Delaware	657	479	−.271	98,083	166,725	.700	366	511	.396	37	78	1.108	2,102	2,783	.324
District of Columbia	970	816	−.159	277,919	235,364	−.181	828	810	−.022	107	188	.757	2,156	3,003	.393
Florida	5,903	5,028	−.148	835,510	2,004,420	1.399	3,462	5,798	.675	352	955	1.713	1,313	1,957	.490
Georgia	8,472	4,180	−.507	636,252	1,107,540	.741	3,651	4,268	.169	262	604	1.305	1,126	1,755	.559
Kentucky	6,721	3,570	−.469	544,031	837,169	.539	2,912	3,143	.079	156	430	1.756	1,103	1,687	.529

State															
Louisiana	6,981	3,777	−.459	528,942	876,789	.658	2,887	3,516	.218	97	445	3.588	1,204	1,650	.370
Maryland	4,253	2,231	−.475	699,153	1,105,599	.581	2,642	3,480	.317	198	406	1.051	1,491	2,480	.663
Mississippi	4,669	2,820	−.396	307,196	483,178	.573	2,079	2,299	.106	64	290	3.531	817	1,388	.699
North Carolina	9,728	5,029	−.483	666,221	1,226,497	.841	4,185	4,920	.176	208	679	2.264	1,035	1,704	.646
Oklahoma	4,688	4,377	−.066	452,491	678,568	.500	2,157	2,483	.151	162	474	1.926	1,272	1,892	.487
South Carolina	5,572	2,188	−.607	371,633	601,612	.619	2,234	2,561	.146	142	374	1.634	1,022	1,487	.455
Tennessee	8,227	4,671	−.432	612,517	992,317	.620	3,364	3,809	.132	221	553	1.502	1,118	1,678	.501
Texas	17,075	14,413	−.156	2,038,812	3,029,398	.486	8,449	10,602	.255	739	1,818	1.460	1,457	1,904	.307
Virginia	6,572	4,430	−.326	701,479	1,198,492	.709	3,483	4,414	.267	312	651	1.087	1,290	1,931	.497
West Virginia	4,785	2,243	−.531	367,796	486,823	.324	1,927	1,768	−.083	118	277	1.347	1,185	1,781	.502
Arizona	1,379	2,036	.476	224,822	462,219	1.056	932	1,670	.792	92	262	1.848	1,381	1,960	.419
California	14,481	21,304	.471	3,799,427	6,529,142	.718	12,738	18,576	.458	1,481	2,905	.962	1,816	2,656	.463
Colorado	1,940	2,286	.178	355,787	614,170	.726	1,520	1,990	.309	171	309	.807	1,499	2,252	.502
Idaho	923	1,491	.615	143,994	205,157	.425	589	699	.187	55	135	1.455	1,338	1,819	.359
Montana	1,098	1,328	.209	156,485	212,493	.358	613	708	.155	57	154	1.702	1,604	2,004	.249
Nevada	236	664	1.813	57,063	152,995	1.681	215	401	.865	31	76	1.452	1,984	2,998	.511
New Mexico	1,332	1,350	.014	147,036	260,079	.769	784	996	.270	79	170	1.152	1,313	1,779	.355
Oregon	2,615	3,157	.207	472,735	640,721	.355	1,652	1,980	.199	187	401	1.144	1,590	2,230	.403
Utah	867	1,557	.796	161,466	285,989	.771	762	1,001	.314	59	185	2.136	1,379	1,935	.403
Washington	3,948	4,899	.241	672,206	985,063	.465	2,539	3,080	.213	265	584	1.104	1,744	2,273	.303
Wyoming	452	664	.469	81,450	113,123	.389	300	346	.153	52	76	1.375	1,750	2,214	.265
Total	279,440	228,600	−.182	41,336,504	60,019,084	.452	161,915	193,468	.195	13,690	30,900	.257	1,545	2,225	.440
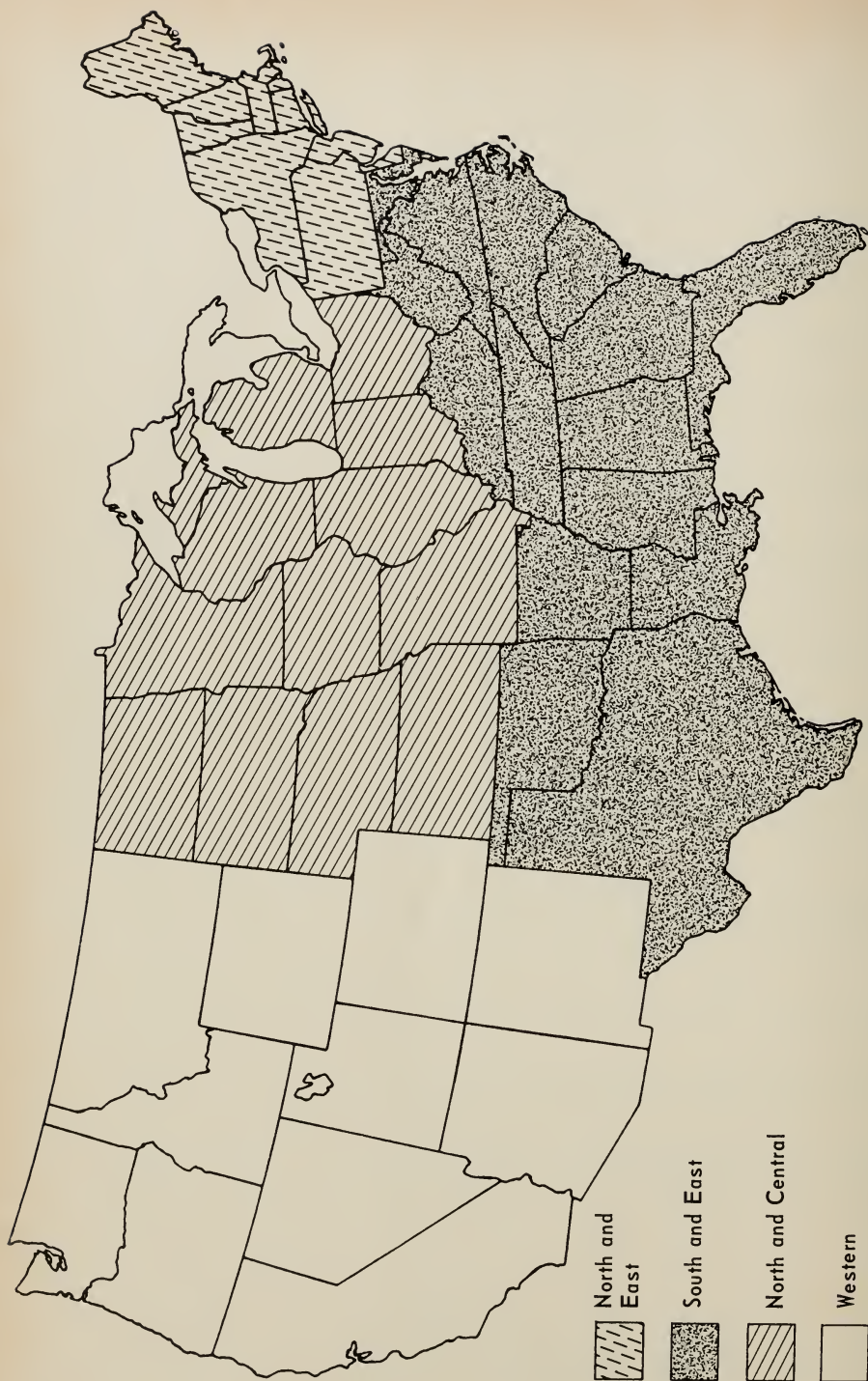
Fig. B–1. Regions of study. Source: Appendix table B–1.

North and East

South and East

North and Central

Western
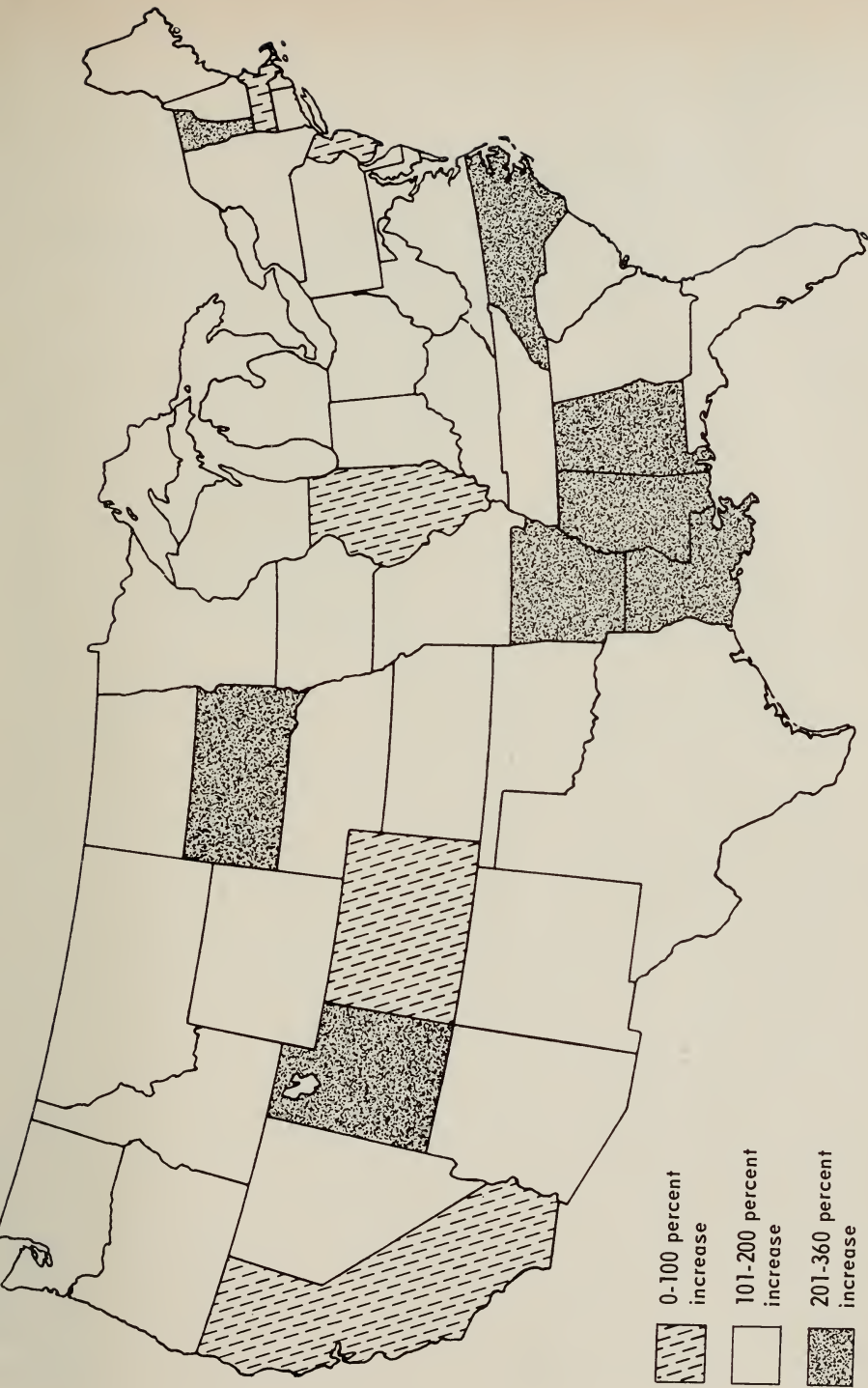
Fig. B-2. Change in number of supermarkets, 1954–1964. Source: Appendix table B–1.

0-100 percent increase

101-200 percent increase

201-360 percent increase
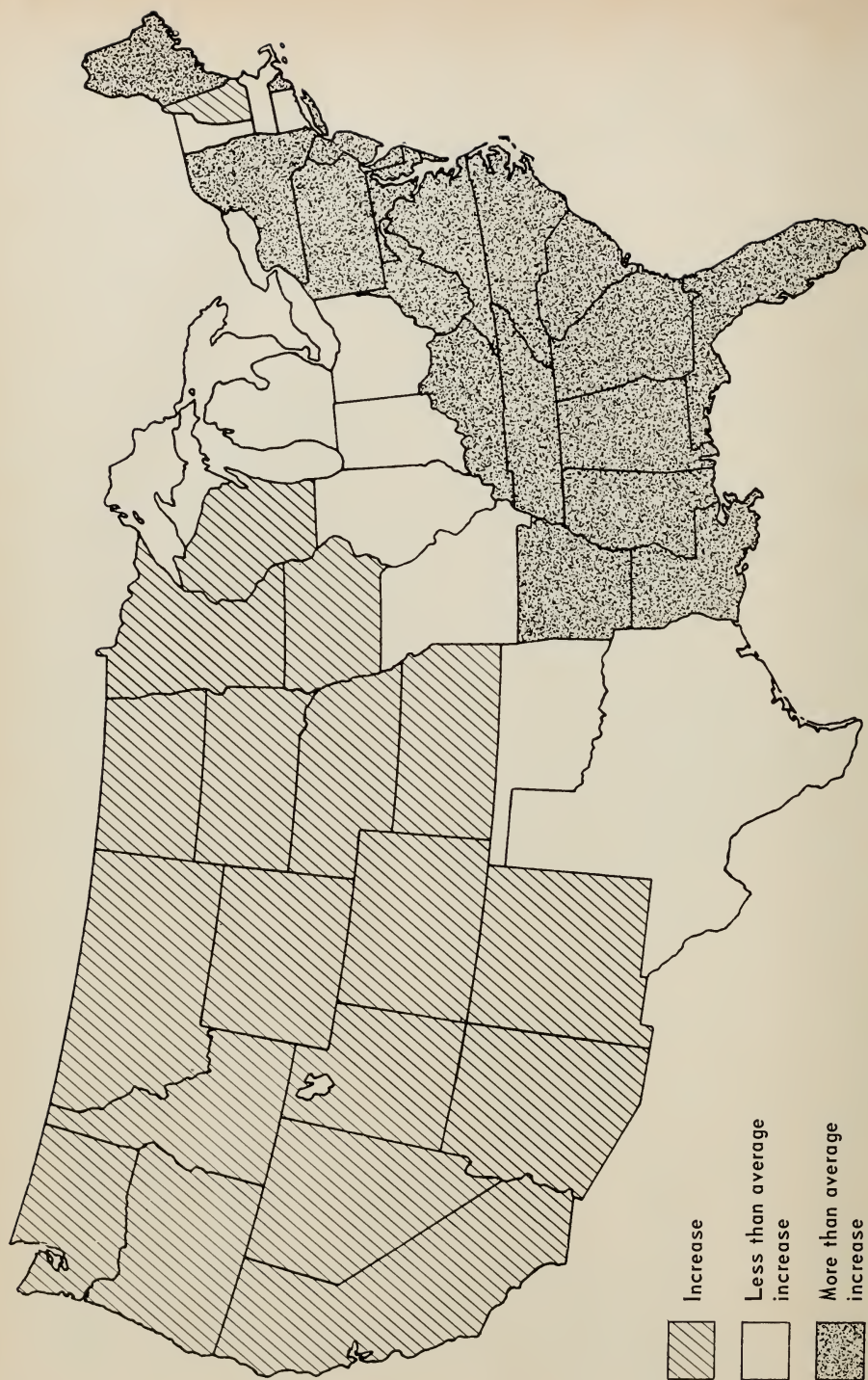
Fig. B–3. Change in number of food stores, 1954–1964. Source: Appendix table B–1.

Increase

Less than average increase

More than average increase
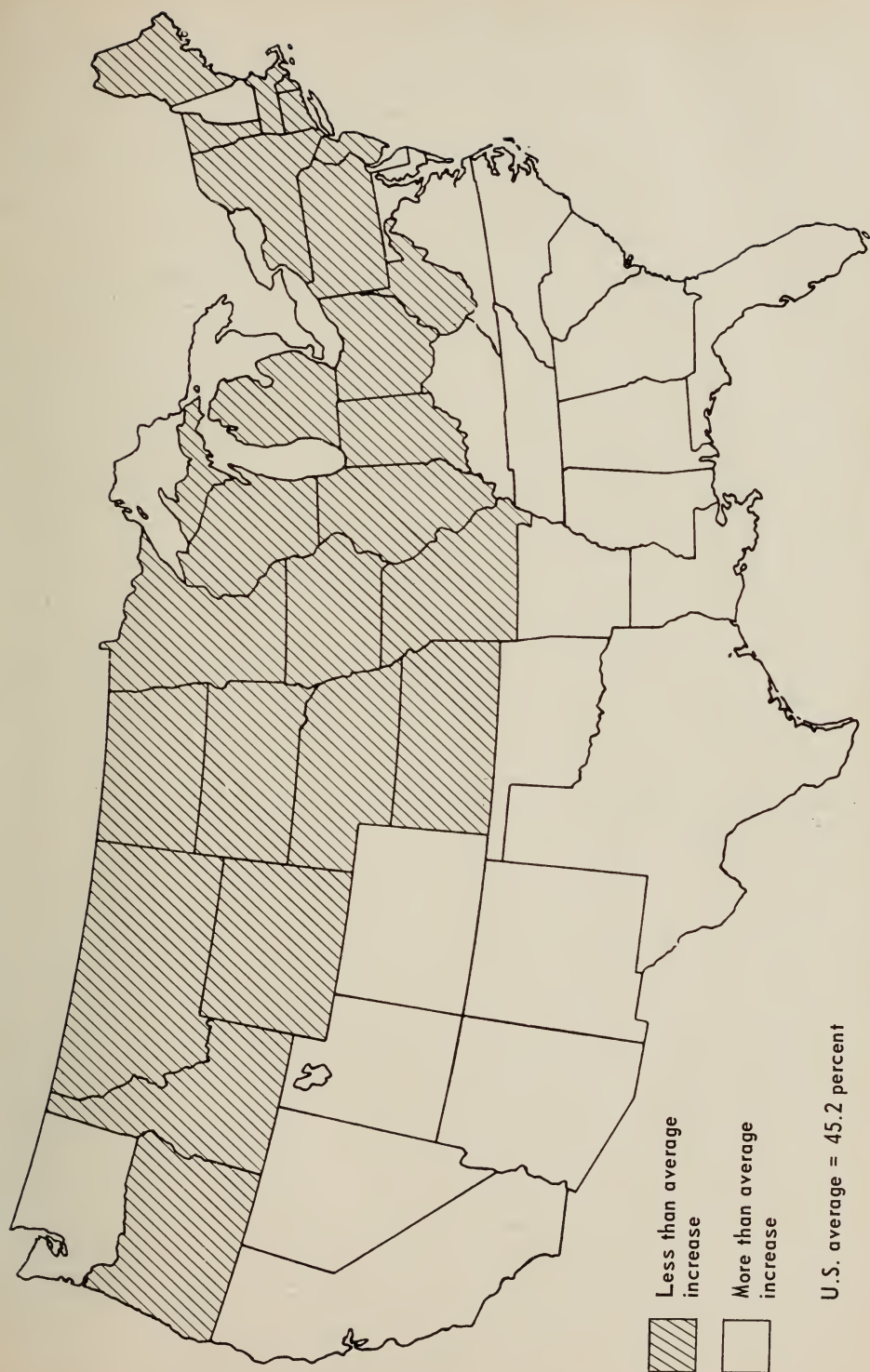
Fig. B-4. Change in sales of food stores, 1954–1964. Source: Appendix table B-1.

Less than average increase

More than average increase

U.S. average = 45.2 percent

APPENDIX C

Table C-1

REGRESSION ANALYSIS RESULTS—ALL 30 CHAINS*

Equation	Dependent variable	Independent variable	Constant	"b" Coefficient†	Coefficient of correlation	t-ratio	n
I	Net sales	Number of stores	25.9030	1.072900	.97860	84.04300	313
II	Net profit	Number of stores	1.1431	.011167	.92408	42.64000	313
III	Inventory	Net sales	3.9665	.057290	.95143	54.49900	313
IV	Current assests	Inventory	1.4138	1.587000	.99550	185.49300	313
V	Fixed assets	Total assets	1.8153	.387000	.96972	70.03500	313
VI	Total liabilities	Accounts payable Current liabilities	9.3857	1.656890 1.959800	.99136	8.95870 16.32000	313
VII	Net worth Total assets	Net sales	47.9168	.003349	.19330	3.47480	313
VIII	Fixed Assets Total assets	Total assets	31.3950	.011456	.13786	2.45479	313

* Observations are based on annual data covering the period 1954–1962, inclusive. Observations consist of data pertaining to the 30 major retail food chains.
† Degrees of freedom 312 — 1.959.

TABLE C-2
REGRESSION ANALYSIS RESULTS—BY SIZE GROUP

Equation	Group	Dependent variable	Independent variable	Constant	"b" Coefficient*	Coefficient of correlation	t-ratio	n
I	(1)	Net sales	Number of stores	−32.0583	1.0970	.94610	43.5585	110
	(2)			84.5949	.8940	.27540	6.3467	108
	(3)			42.0390	.6366	.21530	5.0506	95
II	(1)	Net profit	Number of stores	2.4506	.0106	.79714	20.6010	110
	(2)			1.1119	.0119	.12720	3.9302	108
	(3)			.7986	.0024	.02150	1.4278	95
III	(1)	Inventory	Net sales	10.7090	.0546	.88610	28.9923	110
	(2)			− 4.5370	.0969	.46730	9.6437	108
	(3)			− 1.0578	.0842	.80830	19.8010	95
IV	(1)	Current assets	Inventory	− .5813	1.6001	.99160	113.0970	110
	(2)			4.2617	1.5205	.90110	31.0706	108
	(3)			.0683	1.6424	.97140	56.1980	95
V	(1)	Fixed assets	Total assets	6.7927	.3145	.90230	31.4380	109
	(2)			− .0910	.3558	.95650	48.4858	109
	(3)			.3670	.3174	.86660	24.5815	95
VI	(1)	Total liabilities	Accounts payable	28.8510	1.9958	.98060	7.5473	110
			Current liabilities		1.5949		9.0168	
	(2)			5.2052	− .3594	.97850	.8628	108
					3.2296		12.1524	
	(3)			2.4363	3.9019	.91900	8.1795	95
					.4672		1.2846	
VII	(1)	Net worth	Net sales	.4861	.0031	.07600	2.9823	110
	(2)	Total assets		50.1149	− .0056	.00230	.4950	108
	(3)			37.0850	.1328	.07690	2.7652	95
VIII	(1)	Fixed assets	Total assets	32.1226	.0076	.01550	1.3021	110
	(2)	Total assets		32.7098	.0206	.01380	1.2196	108
	(3)			20.8407	.5851	.02150	5.0458	95

* D.F.   t
109   1.959
107   1.959
94   1.959

Table C-3

REGRESSION ANALYSIS RESULTS— BY INDIVIDUAL CHAIN, GROUP II

Equa-tion	Group	Dependent variable	Independent variable	Constant	"b" Coef-ficient*	Coeffi-cient of corre lation	t-ratio	n
I	(11)	Net sales	Number of stores	− 94.09500	2.30100	.915000	9.84600	11
	(12)			347.99400	− .37250	.044380	.57010	9
	(13)			417.91600	− .81600	.351200	2.20730	11
	(14)			−257.43900	2.17240	.329600	2.10350	11
	(15)			97.09500	.70678	.532800	3.20380	11
	(16)			−621.31700	5.16150	.578900	3.51780	11
	(17)			− 36.25000	1.85000	.968600	1.66690	11
	(18)			13.38800	2.15700	.952800	13.48290	11
	(19)			17.64400	1.42200	.982400	21.13890	10
	(20)			40.11450	.90320	.130400	1.16160	11
II	(11)	Net profit	Number of stores	− 3.50300	.04807	.923700	10.43800	11
	(12)			4.31880	− .00360	.023800	.41270	9
	(13)			9.92980	− .03320	.617900	3.81500	11
	(14)			10.12070	− .04560	.398200	2.44000	11
	(15)			2.47700	− .01360	.384000	2.36870	11
	(16)			− 3.86800	.03590	.306600	1.99500	11
	(17)			− .06670	.02210	.928800	10.08340	11
	(18)			1.33700	− .00760	.109900	1.05450	11
	(19)			.13370	.01250	.969400	15.92900	10
	(20)			2.28600	− .01360	.105700	1.03160	11
III	(11)	Inventory	Net sales	− 7.12330	.08720	.854900	7.28260	11
	(12)			8.57350	.01902	.058800	.66104	9
	(13)			− 49.87200	.30430	.745300	5.13160	11
	(14)			− 8.28550	.11800	.530800	3.19060	11
	(15)			− 1.00330	.07110	.922100	10.32200	11
	(16)			− 1.61210	.07650	.868300	7.70390	11
	(17)			− .02720	.06150	.901000	9.05100	11
	(18)			− .62150	.07910	.859500	7.42100	11
	(19)			.97100	.06010	.985500	23.35700	10
	(20)			− 1.40300	.07290	.526800	3.16500	11
IV	(11)	Current assets	Inventory	− 1.72050	2.21760	.985800	25.02600	11
	(12)			31.96840	.37910	.076700	.76270	9
	(13)			− .20590	1.45600	.993700	37.85500	11
	(14)			1.47800	1.49800	.926700	10.66800	11
	(15)			1.53500	1.48960	.921100	10.24800	11
	(16)			.09710	1.54190	.981700	22.02670	11
	(17)			2.50860	1.66520	.926400	10.64480	11
	(18)			.71910	1.82080	.864200	7.56950	11
	(19)			.74850	1.60700	.963200	14.47830	10
	(20)			1.69350	1.63480	.988060	27.29500	11
V	(11)	Fixed assets	Total assets	− 2.83950	.34680	.983900	23.52100	11
	(12)			− .36430	.33830	.942100	10.67100	9
	(13)			− .35620	.35870	.959600	14.62200	11
	(14)			− 2.71650	.53370	.877600	8.03530	11
	(15)			− .30000	.39820	.968300	16.58950	11
	(16)			− .73440	.31730	.905100	9.26800	11
	(17)			− .44110	.37810	.966000	16.00660	11
	(18)			1.14450	.32380	.737100	5.02320	11
	(19)			− 2.61910	.46160	.989200	27.08300	10
	(20)			.92730	.25160	.909700	9.52260	11

TABLE C-3 (Continued)

Equation	Group	Dependent variable	Independent variable	Constant	"b" Coefficient*	Coefficient of correlation	t-ratio	n
VI	(11)	Total liabilities	Accounts payable	6.96689	−1.94610	.985600	.71936	11
			Current liabilities		4.04490		2.91730	
	(12)			6.47280	5.12470	.909200	3.19970	9
					−.42980		.38950	
	(13)			−3.08690	1.03810	.993000	.48330	11
					2.41260		1.78270	
	(14)			4.81780	−1.53230	.904100	.72340	11
					5.08150		3.31780	
	(15)			2.60520	−2.04123	.928900	.98122	11
					6.56010		4.42900	
	(16)			−.36460	−1.17110	.979000	.53600	11
					4.06800		3.04980	
	(17)			2.16110	−1.86400	.966000	1.16240	11
					3.88500		3.24430	
	(18)			6.58840	2.04750	.922400	2.91840	11
					2.67580		9.71120	
	(19)			−8.54680	5.15910	.972500	1.82450	10
					−.18410		.09060	
	(20)			3.05670	−1.59730	.889500	.48030	11
					3.71480		1.88260	
VII	(11)	Net Worth	Net sales	.33020	.03980	.103700	1.02050	11
	(12)	Total assets		9.75380	.10770	.827800	5.80100	9
	(13)			41.32760	−.01010	.006800	.24789	11
	(14)			27.55200	−.11640	.018800	.41580	11
	(15)			80.65900	−.09450	.325900	2.08600	11
	(16)			38.50100	.01980	.008900	.28387	11
	(17)			50.65200	−.00043	.000045	.02014	11
	(18)			73.65500	−.24570	.690900	4.48560	11
	(19)			47.55200	.02910	.117070	1.02990	10
	(20)			33.98990	.22270	.619340	3.82660	11
VIII	(11)	Fixed assets	Total assets	11.84200	.17620	.657800	4.15800	11
	(12)	Total assets		2.22400	.44040	.884200	7.31100	9
	(13)			33.40400	.00800	.008100	.27190	11
	(14)			−.43340	1.29260	.982300	17.76700	11
	(15)			37.23400	.04910	.041800	.62690	11
	(16)			10.63900	.49810	.594000	3.62830	11
	(17)			38.07100	−.05220	.027700	.50600	11
	(18)			38.44700	−.05690	.007600	.26220	11
	(19)			25.34600	.29690	.818700	6.01090	10
	(20)			33.67400	−.15350	.043200	.63760	11

* D.F.	t
10	2.228
8	2.306
9	2.262

APPENDIX D

Application of Markov technique to structure data

Economists are often interested in the characteristics of institutional changes over time as well as in the paths these characteristics are likely to follow in the future. If, in a given sequence of events, the outcome of each event depends on some chance occurrence with a known probability, then such a sequence is called a "stochastic process" to which a Markov Chain Analysis may be applicable (Judge and Swanson, 1961). Such an analysis has been attempted in our study.

Table D-1 shows the changes in the market shares of the 30 largest retail food chains during the 1954–1962 period. Our first step was to develop six classifications according to market share. With these classifications, we could construct a cross-classification table showing how many chains moved into or out of each classification during this 1954–1962 observation period.

Given the information in table D-2, it is then possible to construct a possibility tree and attach branch weights that describe the process as it moves through any finite number of steps. Alternatively, the transition probabilities (P_{ij}) can now be calculated and represented in the form of the following transition matrix "P" (table D-3).

Where $\sum\limits_{i=1}^{n} P_{ij} = 1$ and $P_{ij} \leq O$ for all i and j. The elements of "P" denote the probability of moving from some class j to class i in the next step. Since the elements of this matrix are nonnegative and the sum of the elements in any column is 1, each column of the matrix is called a probability vector and the matrix "P" becomes a stochastic matrix. This matrix, together with an initial distribution $W^o = \begin{bmatrix} 1 \\ 7 \\ 5 \\ 4 \end{bmatrix}$, completely defines our Markov Chain Process. Given this information, we can determine the outcome of, say, the nth period in the future, i.e., in matrix language:

$$w^o P = w^1 \text{ where } w^1 = \begin{bmatrix} 1 \\ 9 \\ 6 \\ 2 \end{bmatrix}$$

$$w^1 P = w^2 \text{ where } w^2 = \begin{bmatrix} 1 \\ 9 \\ 7 \\ 0 \end{bmatrix}$$

$w^{n-1} P = w^n$ where $w^n =$ infinite future distribution.

Alternatively, this process may be written:

$w^n = w^o P^n$

SALES OF INDIVIDUAL CHAINS AS A PERCENTAGE OF TOTAL SALES OF 30 MAJOR CHAINS, 1954 AND 1962

Chain	Percentage of total sales of 30 chains	
	1954	1962
A & P	35.72	27.52
Safeway	16.24	13.18
Kroger	9.93	10.23
American	5.41	5.44
National Tea	4.66	5.14
Food Fair	3.12	4.85
Winn Dixie	2.04	4.06
First National	3.96	4.05
Grand Union	1.81	3.37
Colonial	3.12	2.36
Jewel Tea	2.18	2.90
Wrigley	1.12	2.05
Loblaw	1.49	2.62
Bohack	1.16	.93
Penn Fruit	.84	.91
Red Owl	.96	1.47
Lucky Stores	.36	1.22
Weingarten	.63	.71
Mayfair Markets	.55	1.51
Thorofare	.56	.46
Fisher Bros	.77	.55
Purity Stores	.79	.56
Thriftimart	.43	1.10
Market Basket	.52	.64
Shopping Bag	.49	.32
Daitch Shopwell	.23	.56
Alpha Beta	.34	.18
Food Mart	.14	.35
Marsh, Inc	.13	.43
Bayless	.24	.33
Total	100.00	100.00

CROSS CLASSIFICATION TABLE

Firms moving to:	Size of firm (1962)	Firms moving from:						Total
		A	B	C	D	E	F	
		Size of firm (1954)						
		.1000–.2714 per cent	.2715–.7366 per cent	.7367–1.9991 per cent	1.9992–5.4256 per cent	5.4257–14.7251 per cent	14.7252–39.9639 per cent	
A	.1000– .2714 per cent	0	1	0	0	0	0	1
B	.2715– .7366 per cent	4	4	2	0	0	0	10
C	.7367– 1.9991 per cent	0	3	3	0	0	0	6
D	1.9992– 5.4256 per cent	0	0	3	6	0	0	9
E	5.4257–14.7251 per cent	0	0	0	1	1	1	3
F	14.7252–39.9639 per cent	0	0	0	0	0	1	1
Total.....................		4	8	8	7	1	2	30

If: P is a transition matrix for a "regular (Hart and Prais, 1956) chain, then the powers of P^n approach a matrix T, each row T is the same probability vector w, and the components of w are all positive.

If: P is a transition matrix for a regular chain and T and w are as described above, then the unique vector w is the unique probability vector such that $wP = w$.

In other words, this states that if P is a transition matrix for a regular chain, there exists a unique vector w that is both a fixed vector for P and a probability vector whose distribution at time n moves toward this equilibrium vector irrespective of the initial distribution or starting state:

e.g., $P^n \rightarrow T$ as $n \rightarrow \infty$

and $T = e^1 w$ where $e = \begin{bmatrix} 1 \\ 1 \\ . \\ . \\ 1 \end{bmatrix}$ and w is the equilibrium vector or probability distribution.

Using this information, one can combine equations and form a system of n linearly independent equations with n unknowns from which the unique values of w can be derived.

Based on the changes that took place during the 1954–1962 period, we are then able to use the Markov technique to determine:[13]

1. the probable structural characteristics of the nation's 30 largest chains at any time (eight-year multiples past 1954) in the future; and

STOCHASTIC TRANSITION MATRIX "P"

| Firms moving to: | Firms moving from: | | | | | |
	A	B	C	D	E	F
A	0	12.50	0	0	0	0
B	100.00	50.00	25.00	0	0	0
C	0	37.50	37.50	0	0	0
D	0	0	37.50	85.71	0	0
E	0	0	0	14.29	100.00	50.00
F	0	0	0	0	0	50.00

[13] For more complete descriptions and applications of the Markov Chain Process, see the following: Padberg, 1962; Kemeny, J. G., *et al.*, 1957; Anderson and Goodman, 1957; and Collins and Preston, 1961.

2. the length of time it would take for the dynamics of structural change to reach an equilibrium.[14] Note, however, this term "equilibrium" does not indicate that the 30 food chains will no longer grow or decrease in size or change classifications. In fact, chains will continue to move from one class to another; however, the *probability* of any chain moving into a given classification, in equilibrium, is exactly offset by the probability of a chain moving out of that same classification (Adelman, 1958).

Limitation to the Markov analysis

All statistical endeavors such as this have some limitations—some created by data deficiencies and inaccuracies, others inherent in the statistical process itself.

In the more common and rigorous version of the Markov Chain Analysis, an extra column and row are added to the transition matrix. This allows for the inclusion of data pertaining to the possibility of chains entering or leaving the existing classifications. Unfortunately, however, information on this type of an occurrence was not available. Without the data necessary for this type of process expansion, it was necessary that our analysis deal with a type of "closed industry" where barriers of entry and exit prohibited a more rigorous study. This restriction admittedly has reduced the applicability of our projections and this must be taken in account with respect to their reliability, especially with respect to any long-run projections.[15]

According to Adelman (1958), two major limitations in the Markov technique itself must be recognized and, if possible, avoided. The first relates to the comparative size of the firms falling within the total range of one's classifications. For example, it is supposedly much easier for a

firm with $500,000 annual sales to raise its total sales by $1,000 than it is for a firm with only $100,000 annual sales volume to accomplish a similar increase. In other words, in a given set of circumstances, it is probable that the sales volume of a large firm will fluctuate by greater absolute amounts than that of a smaller firm. To eliminate this distortion created by the use of "absolute" measurements, all data were converted into "relative" measurements. All sales data were converted into percentages relative or proportional to total chain sales.

The second limitation is related to the establishment of the classification boundaries. It is obvious that by establishing relatively many classifications with small ranges, one will find the firms rapidly moving from one classification to another. Conversely, few classifications with extremely large ranges will create an environment where only a very few firms will ever change classifications during the observation period. Additionally, the larger firms again supposedly have the potential to expand (or decrease) their relative sales more than their smaller competitors. Therefore, Adelman states, "The class intervals were constructed so that their absolute width was greater for large than for small enterprises." Even this procedure, however, should not be subject to the personal whims of the statistician or the "niceties" of the data accumulations. It must basically be a mathematical process, free from personal bias and chosen with some degree of scrutiny.

The class interval procedure used for this analysis was a mathematical technique called "proportionality from the upper limit."[16] It follows on the opposing page.

Next, a limitation on the results themselves must be noted. One must recall that the percentages used herein were relative measurements. Hence, table 20 show that in the year 2010 each of the 30 chains

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[14] However, in this particular application, the matrix of transitional probabilities (P) did not meet the requirement of "regularity." In this case, any discussion of an equilibrium becomes meaningless since all firms move into the absorbing state (or states) as $n \to \infty$.

[15] In a similar way, Collins and Preston (1960) applied the Markov process to the food processing industry. Fortunately, their information allowed them to consider the so-called "not-on-list" column and row.

[16] Pankey, Victor, "Proportionality from the Upper Limit," mathematical technique, Davis: University of California, Department of Agricultural Economics, October 1965, unpublished manuscript.

a b c   d   e
| | | | | | | |
0 1 2 3 4 5 |
 % % % % %   10%   20%   30%   40%

Left column:

40 = upper limit $40 - e = k40 \therefore k = \dfrac{40 - e}{40}$

e = first division
    of classes $e = 40 - k40$

$$= 40(1 - k)$$

---

e = upper limit $e - d = k(e)$ where $(e) = 40 - k40$

d = second division
    of classes $e - k(e) = d$

$$e(1 - k) = d$$

$$40(1 - k)(1 - k) = d$$

---

d = upper limit $d - c = k(d)$ where $(d) = 40(1 - k)(1 - k)$

c = third division $40(1 - k)^2$
    of classes $c = d - kd$

$$c = (1 - k)d$$

$$c = (1 - k)^3 \, 40$$

---

c = upper limit $c - b = k(c)$ where $(c) = 40(1 - k)^3$

b = fourth division
    of classes $b = c - kc$

$$b = (1 - k)^4 \, 40$$

---

b = upper limit $b - a = k(b)$ where $(b) = (1 - k)^4 \, 40$

a = fifth division
    of classes $a = (1 - k)^5 \, 40$

Right column:

a = upper limit

$.1$ = lower class limit

$a - .1 = k(a)$ where $(a) = 40(1 - k)^4$

$.1 = a - ka$

$.1 = (1 - k)^6 \, 40$

$$(1 - k)^6 = \frac{.1}{40}$$

$$1 - k = \sqrt[6]{\frac{.1}{40}}$$

$$k = 1 - \sqrt[6]{\frac{.1}{40}} = .6318$$

Range 0.1–40.0%	Size classes	Per cent of total sales
$a =$ .2714	A	.1000– .2714
$b =$ .7367	B	.2715– .7367
$c =$ 1.9992	C	.7368– 1.9992
$d =$ 5.4257	D	1.9993– 5.4257
$e =$ 14.7252	E	5.4258–14.7252
	F	14.7253–40.0000

Table D-4

STEPWISE PRODUCTS OF MATRIX MULTIPLICATION

Firms moving to:		A	B	C	D	E	F	
	A	0	12.50	0	0	0	0	
	B	100.00	50.00	25.00	0	0	0	
	C	0	37.50	37.50	0	0	0	= P¹
	D	0	0	37.50	85.71	0	0	
	E	0	0	0	14.29	100.00	50.00	
	F	0	0	0	0	0	50.00	

(Firms moving from: A B C D E F)

A	12.50	6.250	3.125	0	0	0
B	50.00	46.875	21.875	0	0	0
C	37.50	32.813	23.438	0	0	0	$= P^2$
D	0	14.063	46.204	73.453	0	0
E	0	0	5.359	26.538	100.00	75.00
F	0	0	0	0	0	25.00

A	5.859	4.736	2.490	0	0	0
B	37.891	32.275	16.943	0	0	0
C	29.883	25.415	13.843	0	0	0	$= P^3$
D	24.358	32.083	47.847	53.967	0	0
E	2.010	5.490	18.876	46.033	100.00	93.750
F	0	0	0	0	0	6.250

A	2.882	2.439	1.293	0	0	0
B	19.513	16.518	8.758	0	0	0
C	15.517	13.136	6.967	0	0	0	$= P^4$
D	41.027	40.983	38.488	29.124	0	0
E	21.061	26.924	44.495	70.876	100.00	99.609
F	0	0	0	0	0	.391

A	.760	.643	.341	0	0	0
B	5.144	4.355	2.309	0	0	0
C	4.091	3.463	1.836	0	0	0	$= P^5$
D	27.100	24.762	18.010	8.482	0	0
E	62.904	66.777	77.504	91.518	100.00	99.998
F	0	00	0	0	0	.002

A	.053	.045	.024	0	0	0
B	.358	.303	.160	0	0	0
C	.284	.241	.128	0	0	0	$= P^6$
D	4.515	3.977	2.523	.719	0	0
E	94.790	95.435	97.165	99.281	100.00	99.999
F	0	0	0	0	0	0

A	.002	.002	.001	0	0	0
B	.002	.001	0	0	0	0
C	.001	0	0	0	0	0	$= P^7$
D	.056	0	0	.005	0	0
E	99.940	99.969	99.969	99.995	100.00	99.999
F	0	0	0	0	0	0

should have sales equaling about 5 per cent of the average total annual chain sales for the period 1954–1962. Since total chain sales in 2010 are likely to be much more than 1962 sales, these results seem reasonable (5 per cent refers to level of total sales in 1962).

Finally, it must be recognized that long-run economic projections (more than 25 years) are quite speculative. In view of the dynamic nature of our food industry, such projections are even more precarious. Nevertheless, short-term (5–10 years) appraisal may prove useful in business planning, since it indicates the probable direction and magnitude of future changes.

APPENDIX E

TABLE E-1

COMPARATIVE PROFIT DATA, SELECTED INDUSTRIES, 1964, 1959, 1954

	Retail food industry	Food processing industry	Durable goods industry	Other consumer goods industry	Agriculture	Nation's 500 largest industrial corporations
	(All food stores)	(63 largest firms)	(61 largest firms)	(39 largest firms)	(All farms)	
1964:	*dollars*					
Sales......................	20,583,834	29,860,031	85,230,345	18,003,273	41,700,000	266,497,511
Net profit (after taxes)......	254,048	1,019,900	5,768,288	1,328,232	6,700,000*	17,237,516
	per cent					
Profit as percentage of sales.	1.230	3.416	6.767	7.377	16.067	6.468
Profit as percentage of net worth..................	10.810	11.450	13.696	13.008	3.641	12.105
	(28 largest firms)	(61 largest firms)	(85 largest firms)	(34 largest firms)	(All farms)	
1959:	*dollars*					
Sales......................	16,880,304	24,253,174	66,860,685	11,878,864	37,479,000	197,394,885
Net profit (after taxes)......	214,785	722,369	4,249,029	823,625	11,279,000*	11,986,772
	per cent					
Profit as percentage of sales.	1.272	2.978	6.355	6.933	10.486	6.072
Profit as percentage of net worth..................	13.142	10.786	12.309	12.869	2.246	11.003
	(29 largest firms)	(67 largest firms)	(84 largest firms)	(35 largest firms)	(All farms)	
1954:	*dollars*					
Sales......................	11,039,253	19,373,995	42,347,046	7,385,349	34,355,000	136,782,913
Net profit (after taxes)......	115,139	456,976	2,612,713	508,540	4,951,000*	8,266,557
	per cent					
Profit as percentage of sales.	1.050	2.358	6.169	6.885	14.411	6.043
Profit as percentage of net worth..................	9.880	NA	NA	NA	3.482	NA

	1963 billion dollars
* *Method Used to Calculate Agriculture's Net Income*	
Cash receipts from farm marketings.............................	36.9
Government payments to farmers...............................	1.7
Nonmoney income...	3.1
Realized gross farm income.....................................	41.7
Farm production expenses......................................	−29.2
Farm operators' realized net income............................	12.5
Net change in farm inventories.................................	.5
Farm operators' total net income..............................	13.0
Farm operators' and family labor charge.....................	−6.3
Farm operators' actual total net income (profit).................	6.7

SOURCE: *Fortune*, 1955, 1960, 1965; Garlock, *et al.*, 1965; and U. S. Department of Agriculture, *Farm Income Situation*, 1964.

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